

AMERICAN BEE JOURNAL

JANUARY, 1921



SIXTIETH ANNIVERSARY NUMBER

SF521
A5

WHEN THE BEES STING YOU'LL NEED AN IDEAL "BEE VEIL" TRUE TO ITS NAME. \$1.95 POST PAID IN U. S. A.

WAX—OLD COMB. We pay the highest market price for rendered wax, less 5c per pound rendering charges. Our rendering process saves the last drop of wax for you. "Put your name on all packages."

HONEY. Send us a sample of your extracted honey. We also buy comb honey. Tell us how much you have and what you want for it. We pay the day shipment is received.

THE FRED W. MUTH COMPANY, Cincinnati, Ohio

"THE BUSY BEEMEN"

The Diamond Match Co.

(APIARY DEPT.)

**MANUFACTURERS OF
Beekeepers' Supplies
CHICO, CAL., U. S. A.**

Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

The Diamond Match Co.

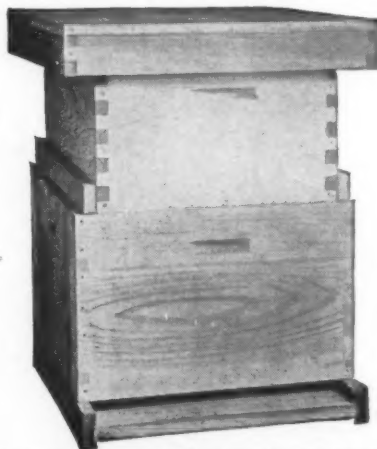
Apiary Department

CHICO, CAL., U. S. A.

MODIFIED DADANT HIVE

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

Your present brood equipment can be put above the Modified Dadant hive used as full-depth supers.



You get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.

You get deep frames, large one-story brood-nest, frame space ventilation, excellence in wintering, swarming easily controlled.

MODIFIED DADANT HIVE FEATURES

1. Eleven frames, Langstroth length, Quinby depth.
2. Frames spaced 1½ inches for swarm control.
3. Extracting frames 6¼ inches deep.
4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.
5. Langstroth "Standard" equipment; easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

**G. B. LEWIS COMPANY, Watertown, Wisconsin
DADANT & SONS, Hamilton, Illinois**

CONTENTS OF THIS NUMBER

	Page.
Sixty Years of Beekeeping in California, by J. E. Pleasants...	7
Looking Both Ways, by E. F. Phillips	9
Looking Backward, by J. E. Crane...	10
Sweet Clover in Canada	11
Editorials	12-13
Sixty Years Among the Bees, by Frank C. Pellett	14
Our Sixtieth Anniversary	15
Hive Tools, by Arthur C. Miller...	17
Notes from Texas, by Walter W. Durham	18
About Supplies, by C. S. Bender...	18
Methods of Comb-honey Production, by E. S. Miller	18
An American Hero	19
A Word from Australia	19
Sixty-pound Cans	20
Joining the League	20
Colony that Would Not Accept a Queen, by Eugene Holloway	20
Seastream Plan of Building up Weak Colonies	20
Washington State Fair, by George W. York	21
The Purple Martin, by I. E. Webb	21
Two Colonies in One, by Wm. Bair	21
Another Woman Beekeeper	22
Climbing Milkweed a Pest	22
Honey Plants From China	22
Marketing and Prices on Honey, by Wesley Foster	22
Loose Hanging or Hoffman Frames, by C. P. Dadant	23
Honey Changing Quality	24
Cause of Isle-of-Wight Disease	24
First Issue of American Bee Journal	25
A Beekeeping Entomologist	25
The Honey-making Wasps, by Frank C. Pellett	26
The Honeybee in Russia	27
A Capable Beekeeper, by T. C. Johnson	28
Directory of Beekeeping Officials...	28
Answers to Questions	32
News Notes	33

Seed Book FREE



Every year, for 34 years, thousands of people have adopted Olds' Catalog as their farm and garden guide. The carefully tested and selected seeds it offers have produced heavy field crops and successful gardens everywhere. Customers have long since learned that

Olds' Catalog Tells the Truth

Its descriptions, both in word and picture, are truthful in every respect. You can positively depend on garden, flower and field seeds, potatoes, plants and bulbs listed in this book being exactly as represented. All seeds conform to the strict Wisconsin seed laws. When you buy Olds' seeds, good yields are assured from the seed standpoint. You take no chances.

Write for This Book Tonight

A postal will do. But don't delay. Start right with right seeds.

L. L. OLDS SEED COMPANY
Drawer 600, Madison, Wis.



NEW BINGHAM BEE SMOKER

PATENTED



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

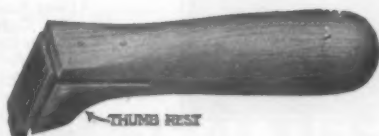
	Size of shipping stove	weight
	Inches	lbs.
Big Smoke, with shield	4 x 10	8
Big Smoke, no shield	4 x 10	8
Smoke Engine	4 x 7	8 1/4
Doctor	3 1/2 x 7	8
Conqueror	3 x 7	1 3/4
Little Wonder	3 x 5 1/2	1 1/4

The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive handlers.

East Lansing, Mich., May 10, 1920.
A. G. Woodman Co., Grand Rapids, Mich.

Dear Mr. Woodman:—I have now had several weeks' opportunity to try out the New Smoker, called the Big Smoke, with the guard about the fire pot. The smoker is even more than I anticipated, and unless something else is brought out that is still better, you can be assured that this particular one will be standard equipment for this place from now on.

B. F. Kindig,
State Inspector of Apiaries.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES

2 lb. Friction top cans, cases of 24
2 lb. Friction top can, crates of 612
2 1/2 lb. Friction top cans, cases of 24
2 1/2 lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 300
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 100

Ask for our special money-saving prices, stating quantity wanted.

A. G. WOODMAN CO.

GRAND RAPIDS, MICH., U. S. A.

Send us an itemized list of your requirements and let us figure on your goods for 1921. Our new catalog will be issued about January 1.

"GRIGGS SAVES YOU FREIGHT"

TOLEDO

HONEY!—HONEY!—HONEY!

We can supply your wants. We have White Orange, White Sage, White Clover, Buckwheat in bulk or 5-pound pails. Write us your requirements and we will be glad to quote prices.

BEESWAX WANTED—Second hand 5-gallon cans used once. Get them now for next season.

GRIGGS BROTHERS CO., TOLEDO, OHIO DEPT. 24

"GRIGGS SAVES YOU FREIGHT"

**THE AULT 1921 BEE SHIPPING CAGE** Patent Pending

- 1st. It is a dark cage, much more so than the open screen cages we have been shipping in in the past.
- 2nd. The feeder uses pure Sugar syrup. Better than Honey or Candy to ship on; it contains water as well as feed.
- 3rd. Feeders are made more substantial, one-third larger, and have screw cap that will not jar out.
- 4th. Instead of one small hole, we now use a cotton duck washer in the screw cap that has proven to overcome all the objections found to the liquid feed method.
- 5th. The Cage is one piece screen wire, protected by thin boards on the outside.

Send for circular describing the cage in detail, prices, etc.

ORDERS are coming in daily for 1921 SHIPPING

Five per cent cash discount for Nov, 3 per cent for December, 2 per cent for January, on all orders. Or will book your order with 20 per cent down, balance just before shipping.

QUEENS

My Free Circular gives prices in detail, etc. Safe delivery guaranteed within 6 days of shipping point. We ship thousands of pounds all over U. S. A. and Canada.

1 pound pkg. bees \$3.00 each, 25 or more \$2.85 each

2-pound pkg. bees \$5.00 each, 25 or more \$4.75 each

3-pound pkg. bees \$7.00 each, 25 or more \$6.65 each.

F. O. B. shipping point. Add price of queen wanted.

PACKAGE BEES**QUEENS**

1 Untested Queen \$3 each, 25 or more \$1.75 each

1 select untested, \$2.25 each, 25 or more \$2 each.

1 Select Tested Queen \$3.50 each, 25 or more \$3.00 each

1 Tested Queen \$3.00 each, 25 or more \$2.70 each

NUECES COUNTY APIARIES, E. B. AULT, CALLEN, TEXAS
Prop.

The enormous demand for "SUPERIOR" FOUNDATION signifies highest quality. Our 1920 output over 150,000 pounds

Beeswax wanted: For cash or in exchange for foundation or bee supplies. Prices on request
SUPERIOR HONEY CO., Ogden, Utah (Manufacturers of Weed Process Foundation)

DR. C. C. MILLER, ENLARGED PHOTO 8x11.

SUITABLE FOR FRAMING

A desirable Gift for any beekeeper

Price \$1 Postpaid

AMERICAN BEE JOURNAL, Hamilton, Ill.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.



America's Leading Poultry Paper
Showing Champions in all Breeds

4 MONTH'S TRIAL SUBSCRIPTION 25c

U. S. Stamps accepted. Practical articles by famous poultrymen.
80pp; 1 year \$1.00; 3 years \$3.00.
Poultry Tribune Dept. 8, Mt. Morris, Ill.

BACKED BY OUR REPUTATION

HAVE YOU EVER thought how many beekeeping devices, hives, etc., once boomed and sold extensively have had a mushroom sale—to be discarded as worthless when exposed to the light of careful investigation and thorough trial?

HAVE YOU EVER gotten anything made and recommended by us that did not stand the test of usage and time?

Why? Because we put out only such articles as have proven thoroughly satisfactory to us; those which we have ourselves used and tested extensively and long.

OUR SPECIALTIES

DADANT'S FOUNDATION—as near to the perfection as we can make it. Tested in our apiaries, manufactured and packed under our personal supervision.

ELECTRIC IMBEDDER—It cements the wires in the wax. Makes hauling of wired combs to outapiaries feasible, reduces sagging to a minimum.

BEE BOOKS—containing authentic and comprehensive information on bee culture. Special books for special branches of beekeeping. A credit to any library.

MODIFIED DADANT HIVE—The large hive, a hive that accommodates the prolific queen, cuts down swarming, helps in wintering. Booklet for the asking.

DADANT'S FOUNDATION EVERY INCH, EVERY POUND, EVERY TON EQUAL TO ANY SAMPLE WE HAVE EVER SENT OUT.

Specify it to your dealer. If he hasn't it write us

DADANT & SONS, HAMILTON, ILLINOIS

Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking

A HAPPY "BEEWARE" YEAR

A Happy New Year to all Beekeepers is our wish
 You can make it happier. Make it a "Beeware" year
 Look over the list of improved appliances we offer
 Each embodies the quality found only in our goods
 Thousands look for this mark--"Beeware." Do you?

THREE NEW BRANCH HOUSES

Eastern and Southern Beekeepers will be surprised to know that their increasing patronage has necessitated the opening of three new "Beeware" branches to afford them the service to which they are entitled. Address the G. B. Lewis Company at

328 Broadway, Albany, New York
 Lawyers (Near Lynchburg), Virginia
 132 Webster Ave., Memphis, Tenn.

SOME "BEEWARE" SURPRISES

A Lewis 4-WAY bee escape, FASTER AND BETTER; a new Lewis wiring device, TAKES ANY SIZE FRAME; Woodman's Big Smoke Smoker, FOR THE COMMERCIAL HONEY PRODUCER; Muth's Improved Bee Veil, YOUR SHOULDERS WON'T PUSH IT OFF; Lewis Cappings Melter, NO OVERHEATED HONEY FROM CAPPINGS; 5-Way Wood-and-Zinc Excluder, WIRE BRUSHED; Honey Tanks, heavier and ELECTRIC WELDED; Metal Eyelet End-Bars, NO SAGGED BROOD COMBS; many other improvements FOUND ONLY IN LEWIS "BEEWARE"

LOOK
FOR



THIS
MARK

Only distributors of Lewis "Beeware" sell these. Your "Beeware" catalog gives your distributor's name. Let us send this surprise catalog. Write us today.

G. B. LEWIS COMPANY, WATERTOWN, WISCONSIN

MAKERS OF LEWIS "BEEWARE"

NATIONALLY DISTRIBUTED



VOL. LXI—NO. 1

HAMILTON, ILL., JANUARY, 1921

MONTHLY, \$1.50 A YEAR

Sixty Years of Beekeeping in California

BY J. E. PLEASANTS

Beekeeping was introduced into the west by men of courage and enthusiasm. The distance from the older settled centers was great; travel was slow, accomplished by primitive methods and fraught with difficulties.

We are indebted to that intrepid enthusiast, John S. Harbison, for the beginning of our industry. From Mr. Harbison's own account we get the following data of the pioneer apiary of California. John Harbison came to California in 1854, and for two years he studied the flora of the State, while engaged in the nursery business. At the end of this time, he sold out his nursery and returned to his old home in Lawrence County, Pennsylvania, with the intention of bringing out bees.

Mr. Harbison had learned the care of bees from his father in boyhood, so was well equipped for his undertaking. He tells of the care with which he prepared his shipment, which was to make the long journey by water from New York to San Francisco via the Isthmus. He had the lumber for his hives sawed three-eighths of an inch thick to save on weight, as the freight from Newcastle, Pa., to San Francisco was very high. The hives, of course, were small, so Harbison added a chamber about 3x8x13, well ventilated with screen, as a place for the bees to get off the combs and carry out the dead.

He started with 116 colonies, and lost only six on the journey.

Being a man of pleasing address, Mr. Harbison made friends with all with whom he came in contact, and was accorded all possible assistance by the ship's officers.

His first apiary was located in the Sacramento Valley. He readily sold all the bees that he was willing to dispose of at \$100 per colony, and mentions colonies being re-sold at \$200. The cost of bringing the 110

colonies from Pennsylvania to California was about \$1,800.

Mr. Harbison made the first shipment of honey that went east from California. This was sent with the first carload of green fruit that was shipped to Chicago. In 1869 Mr. Harbison moved his bees to San Diego County, in the extreme southern part of the State, where he continued in the business until the time of his death, in 1914. At one time he kept 3,750 colonies, divided into twelve apiaries. He sent the first carload of honey to go east from his San Diego apiaries. This honey was sold in Chicago at 27 cents per pound.

Mr. Harbison was a producer of comb honey. He invented a hive which was used in California until the introduction of the Langstroth hive here. He used two-pound sections. He was at one time one of

the largest comb-honey producers in the world, and took many prizes for his exhibits at the Centennial and later exhibitions. Even a short time before his death he outlined a plan for a model apiary to be placed on the San Diego Exposition grounds in 1915. He was the author of a book on beekeeping, and his interest in his chosen pursuit never flagged.

Among other pioneer beekeepers were Mr. Wm. Muth-Rasmussen, Dr. Elisha Gallup, John F. Corey, R. Wilkin and N. Levering, the editor of the first bee publication on the Pacific coast. This was the "California Apiculturist," which was first published in 1882. Mr. Muth-Rasmussen was probably the first in California to use an extractor. He brought out a Peabody extractor in 1871. Prior to this all honey had been rendered out in sun extractors. Mr. Muth-Rasmussen writes that about three years after this he found others using home-made extractors run by gear wheels. In 1873 he and Captain J. T. Gordon called a meeting and organized the Los Angeles Beekeepers' Association, the first beekeepers association on the Pacific Coast. Mr. Muth-Rasmussen afterward moved to Inyo County, California, where he has since lived, and is a producer of comb honey.

There is an interesting story told in Gleanings of one of Mr. Corey's experiences, which well illustrate his determination to overcome difficulties. In the early days he was a mail carrier in the mountain regions of Northern California. On one of his trips he bought a small swarm of bees (probably a nucleus). This he carried on his shoulders over a hundred miles, part of the way on snowshoes.

The first Langstroth hive was used here in about 1872, by Mr. John Beckley.

Among later men notable for their



Wm. Muth-Rasmussen, of Independence

achievements in bee culture are M. H. Mendleson of Ventura County; Andrew Joplin, of Orange County; John H. Martin, whose charming articles in Gleanings under the pen-name of "Rambler" have been enjoyed by all readers of the magazine; M. C. Richter, of the San Joaquin Valley, author of the bulletins on "The Honey Plants of California"; Willis Lynch, instructor and apiarist of Stanislaus County, and Messrs. Hauser and Hogaboom, of the Sacramento Valley. Mr. Joplin's crop of extracted honey this year was about 25 tons from sage alone. Mr. Mendleson is probably at the present time one of the world's largest beekeepers. He came to California in 1880, and while he had kept bees previous to this, he worked with the veteran apiarist, Mr. Wilkin, to whom he pays this tribute:

"Mr. Wilkin was one of the most scientific, orderly and practical of men. He was a good and patient teacher, and was resourceful, and a genius in creating conveniences. It was a pleasure to work in his beeyard, everything was so clean and orderly."

Mr. Mendleson's apiary, at its largest, contained 2,000 colonies, and his largest yield for one season was 101 tons, taking out and extracting as much as three and one-half tons in one day. The cut shows his Piru apiary of 700 colonies. This is on a hillside among most picturesque scenery, and is terraced. Each terrace contains two rows of hives facing the alley-way in pairs, a numbered stake between each pair, and an individual record kept of each colony. All queens are replaced every year or two with the very best Italian stock.

Among the many younger men who

have made notable success as apiarists we will only mention two, for lack of space. Mr. L. L. Andrews, of Corona, son of the veteran inspector of apiaries of Riverside County, and George J. Brown, of Orange County. L. L. Andrews got his start by digging 24 colonies of bees out of rock caves and trees. He added to these by purchase and increase until he now has 1,000 colonies, and his crop this year from orange and sage was 60 tons. Mr. Brown began as a boy, some ten years ago, and now has 800 colonies. His crop this year was 50 tons.

In the beginning of the bee business in California we had several problems to solve. The package problem seemed one of the most complex at the start, but was the quickest solved. We used kerosene cans mostly, though some used barrels. The experience of some of the beekeepers who tried barrels was harrowing to relate. I had two neighbors who stored their honey in barrels, waiting for a better price. They never got it. All through that winter, which was quite dry, the honey leaked out just about as fast as the bees could take it up. My bees went through fine that winter, as they were near enough to my neighbor's honey barrels to use them as feeders. Those of us who used kerosene cans will never forget those days of cleaning and soldering, when preparing for a honey flow. But from the ancient kerosene can was evolved the modern honey can and case, California's bequest to the extracted-honey producers of the country.

The price of honey was good, at the beginning, for a few years. Then it dropped very low. I remember selling extracted honey in 1877 for 9 cents, but from 1877 until about 1884-1885, the beekeepers were in luck if their honey netted them 3 cents.

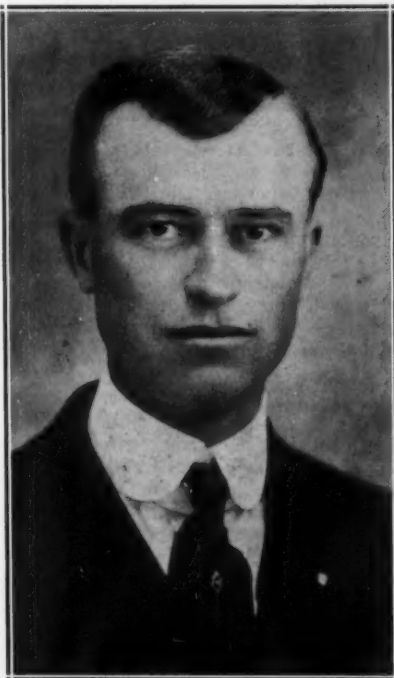
The cause of this was exorbitant freight rates, on the one hand, and the treatment we received at the hands of the commission men on the other. In fact, matters got so bad that producers quit sending their honey to the commission houses. That forced the buyers to come into the field; and while prices were not what they should be, we at least had the satisfaction of selling our own honey. Now the California Honey Producers' Exchange bids fair to solve the marketing problem. This was organized over two years ago, for the purpose of marketing honey and buying supplies. It was organized with the assistance of the State Market Director, and is modeled to some extent on the plan of the fruit exchanges. There are about 70 per cent of the commercial beekeepers of the State in the membership, with new members coming in regularly. In addition to furnishing honey in carload lots to the buyers, the Exchange is now putting up honey in small packages, which are being sold to wholesalers, who do the distributing. The California Exchange is



L. L. Andrews, of Corona

young, but so far is meeting with a fair measure of success.

Up to about 30 years ago most of the honey of the State was produced in the southern part, and exclusively from wild plants. Now beekeeping is a thriving industry in the northern part, also, as well as in the large interior valleys. While we still depend upon the wild flora for our mountain apiaries, the bee forage along the foothills and in the valleys has been largely increased by the large acreage planted to oranges and beans, in the coast counties, and by the alfalfa fields of the interior valleys. The Sacramento and San Joaquin valleys have hundreds of thriving apiaries fed by alfalfa and lipia. Alfalfa does not furnish nectar in the cool coast region, to anything like the extent that it does in warm inland valleys. Another comparatively new section, rich in the production of honey, as well almost as other resources, is the Imperial Valley, lying in the extreme southwestern portion of the State. This valley is truly one of the wonderlands of the Southwest. A reclaimed desert, as it were, but of a soil rich in silt washed for ages from the overflow of the Colorado River; soil which only needed water to produce anything in the dry, warm climate in which it lies. Water is now had in abundance, and its alfalfa fields yield an ample supply of nectar to thousands of colonies of bees. While honey is not produced commercially in all parts of California, in the last twenty-five years the industry has very materially increased. We still produce almost as much from the native plants, and the great increase of forage from cultivated plants has enabled many more to engage in the business. The wild pas-



George J. Brown, of Tustin, Calif.

turage of Southern California is pretty thoroughly stocked, so there is little room in the sage belt for beginners, unless they buy an old range.

I believe California now leads in the production of honey. The honey for the most part is of excellent quality. There is no more delicately flavored honey than that produced by the sages, and it is of excellent body when allowed to ripen properly. The orange honey is also beautiful to look upon, and is of a spicy flavor, recalling the fragrance of the orange blossom itself. It is a very common practice for beekeepers here who can obtain suitable locations to move from orange to sage and thus get two flows in one season. Some then move to the lima bean fields and get three. The bees there are largely Italian, though Cyprians, Carniolans and Caucasians are used by some. Of course, there are plenty of hybrids. Almost all the beekeeping counties have county clubs, which serve to keep the members in touch with each other's work and socially.

The State has a good foulbrood law, providing for an inspector for each county where the beekeepers demand one. The system of inspection has been thorough, the inspector giving his whole time to the work during the season, and subject to call at any time. American foulbrood has been greatly decreased, and is altogether under control. European exists in some localities, but is not near the menace that it was.

California.

LOOKING BOTH WAYS

By Dr. E. F. Phillips

The anniversary of the founding of the American Bee Journal gives opportunity to look backward over what has happened during the sixty years since it was first published. Those who live in the past and direct their view only backward fail to see the bigger things that are ahead and, on the other hand, if we look forward we fail to take advantage of the lessons of the past and lack perspective. Modern beekeeping is so new that there has not been time for a long historical record, but we can learn some lessons from what is now a matter of record.

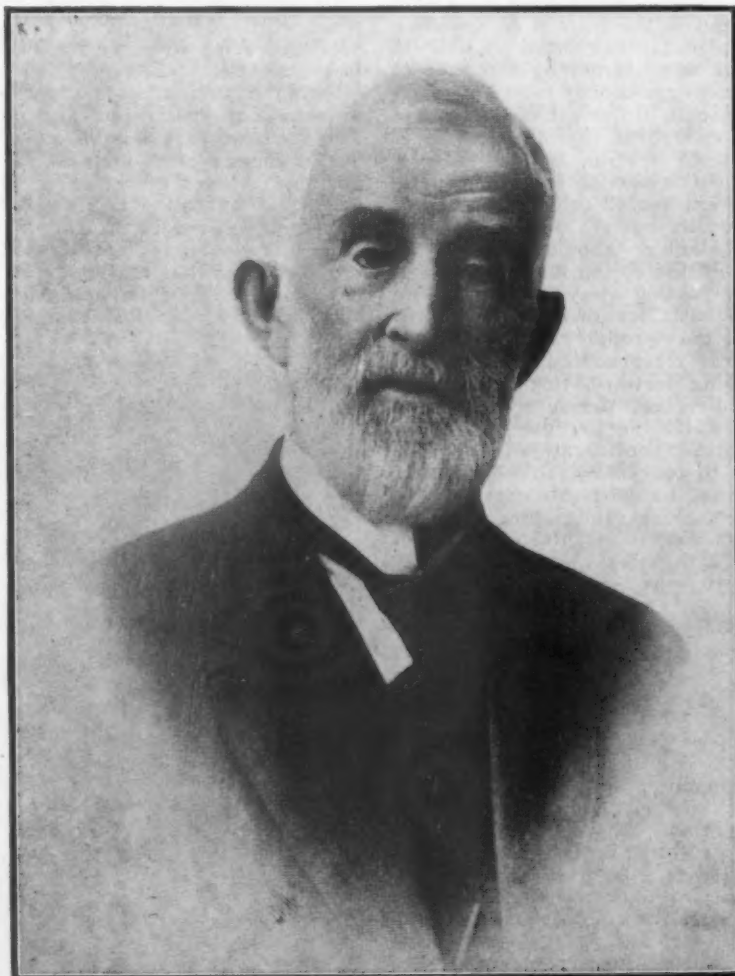
The founding of the American Bee Journal followed closely the invention of the movable-frame hive by Langstroth, which made commercial beekeeping a possibility. Samuel Wagner, the worthy founder of the Journal, was a close associate of Langstroth and did much to connect the American work with that done in Europe. The early issues of the American Bee Journal were filled with excellent articles of scientific interest, and these early issues are still valuable for permanent record. In those days the interest of the beekeeper was largely in a study of the things that bees do, and not so much in what the beekeeper does. This work and that of early American beekeepers was

the basis for the beekeeping of today, which rests almost solely on observations on bee behavior and not on development in apparatus. There was a time in American beekeeping when the sentiment seemed to be that we can get apparatus to do the work of the beekeeper, but this almost resulted in the destruction of the industry in the days of comb-honey production. Undue emphasis on apparatus and systems of management took the attention of beekeepers away from the needs of the bees themselves, and as a result there was a tendency to squeeze every possible drop of the honey away from the brood-nest and into the supers. This policy resulted in small colonies, and in the death of an abnormally large percent of the bees in winter.

If one could get far enough away to view the whole industry it would be clear that, as a result of this sort of teaching, there is today a lack of attention to the behavior and needs of bees and comparatively too much attention and thought is given to apparatus. As a result of the type of teaching prevalent thirty years ago, the common practices throughout the country are almost everywhere deficient, in so far as the needs of the bees are concerned. There is almost

always too little honey left with the bees, not sufficient protection is given them in winter and their needs in spring are not supplied adequately. This is a remnant of an earlier day in American beekeeping and is still greatly retarding the proper development of the industry. It is essential to call attention to the difference between the common practices in beekeeping and those of the successful beekeeper, for it is not intended that the foregoing statement should be applied to progressive beekeepers who study their problems adequately.

This look at history and at the present practices of what we may call the average beekeeper, which are the result of what has gone before, should not fail to point out to us what should be the line of attack on our problems for the future. In so far as beekeepers of the past have failed, their failures should serve us as lessons of what to avoid. It is equally important that we avoid the tendency to claim for the present day all of the good things in beekeeping. We are constantly confronted with "discoveries" that we later find clearly described in Langstroth or Quinby, and this failure to keep before us the good things of the past is as bad as to hold fast to the weaknesses of the



J. S. Harbison, the pioneer honey producer of California.

past. It is necessary, as suggested by the title, to look both ways.

The recent tendency to emphasize the importance of winter protection, the discussion of the use of larger hives, the emphasis on the prevention of European foulbrood rather than its cure, and the many experiments on methods for wiring frames to prevent sagging, and thus to get larger brood-nests, all point to a realization that our colonies are often not strong enough before the honey-flow. Langstroth, in his first edition, emphasized the necessity of keeping all colonies strong, so this is no new idea. During the period of depression, beekeepers departed from this ideal and we have not yet fully recovered from this. It is now coming to be generally realized that only strong colonies are profitable and by some means or other the beekeepers of the future will have even stronger colonies than are found today, even in the apiaries of many good beekeepers.

The word "strong" is not sufficiently accurate, because it does not mean the same to everybody. Our books on beekeeping usually state that a colony of bees in good strength may consist of 50,000 to 70,000 bees. Years ago Charles Dandant had 70,000 cells of brood in some of his colonies just before the clover flow, and in the Bureau of Entomology apiary it has been possible to average this amount by the time of the tulip-tree honey flow in early May. Some of our colonies have had brood enough at that time to fill 15 Langstroth frames, and as this is possible this should, for the present, be our aim for all colonies. One still occasionally hears a beekeeper argue that colonies should not be too strong in the spring, but this idea is rapidly passing away, as there is no logical basis for such a belief, provided the proper swarm control measures are practiced.

Looking forward, then, it is safe to predict that the future is to be one in which the strength of colonies is a prime consideration. Whether we are to get this by the use of larger hives is still a debatable question, but the hive alone cannot produce large colonies. Whatever hive is used, and after all, the hive is only a tool, it is clear that the essentials are better methods of wintering, frequent requeening, and especially stores in spring more abundant than is now usual.

If only these big essentials can bore their way into the minds of beekeepers there is scarcely any limit to the beekeeping of the future. Vast stores of nectar are now lost from lack of colonies to gather them, and perhaps especially from the weakness of the colonies at the proper time. If beekeeping is to grow, as we hope it will, it must become more reliable by the use of strong colonies.

Since future success seems to depend on greater efficiency in having more bees to the colony, it will be

clear that the future successful beekeeper will be a student of bee activities. Looking backward, we have seen that the foundations of the industry were built by such students, and looking forward we must expect a great revival in interest in such work and many new investigations. The recent rapid development of commercial beekeeping has naturally directed attention to the devising of improved apparatus and to plans for efficiency in systems of operations. The depression of the comb-honey era, however, resulted from undue emphasis on these things, and we may well learn a lesson from this.

If the future successful honey producer is to be a student of bee behavior, and if success is to depend on the proper application of the facts that obtained to colony management, it will be evident that the future of beekeeping calls for specialization. It can scarcely be expected that the many thousands now owning bees will sufficiently study the problems of the beekeeper so as to make their beekeeping financially profitable. The spread of the brood diseases also contributes to the confusion of the uninformed beekeeper. It does not take the son of a prophet to predict a great development in specialist beekeepers.

Immediately the question arises, what will be done with all the honey produced when so many are engaged in commercial beekeeping? The same question has confronted man in all branches of specialized agriculture. The questions are not all answered, but in enough cases increase in production has been accompanied by efficiency in marketing and in making a market to relieve us of fear on that score. It is perhaps unfortunate for the beekeeper that the honey market is so influenced by the sugar market but, in spite of this handicap, a

proper organization of commercial producers will help wonderfully. The time is ripe for such organization.

In looking back over the sixty years since the first issue of the American Bee Journal we can see many mistakes and blunders. We can see where well-intentioned men directed the attention of American beekeepers into channels which resulted into disaster. The industry has often been hurt by poor leadership, yet through the years there have been constantly present wise leaders who have counteracted with helpful influence. The grand total has led to the present day success. To look forward one must be an optimist. If we profit by past successes and failures our paths will lie in more pleasant places. Any one can see that there is coming on a new generation of beekeepers of wide vision, with keen business sense and scientifically minded. Under such leadership we may expect a brilliant future.

Washington, D. C.

LOOKING BACKWARD

By J. E. Crane

THE sixty years from 1860 to 1920 well cover the development of scientific beekeeping in the United States. True, the Rev. L. L. Langstroth had brought out the movable-comb hive a few years before, and Moses Quinby had published his first book explaining the mysteries of beekeeping, yet, for the most part, beekeeping went on very much as it had, for the previous two or three thousand years.

Langstroth and Quinby surely laid the foundations deep and broad on which the superstructure of scientific beekeeping in the United States has been built. In 1860 the first American journal devoted to beekeeping was published, a great step in advance of previous conditions. At about the same time Italian bees were first introduced into this country, greatly increasing the interest of beekeepers in the business, for from some accounts about them we thought they must be nearly as large as bumblebees and could work on red clover as well as white. The publication of the American Bee Journal was discontinued during the Civil War, and again started after the war, thus, increasing the interest in beekeeping, and the more careful study of the habits of bees.

Soon Beekeeping Associations, both State and County, sprung up like mushrooms over much of the north, and interest in bees increased. There were no supply houses in those early days, and we had to make our own hives as best we could. All sorts of hives were invented and, of course, patented, very few of which were as good as the Langstroth hive, brought out a few years before.

It was in the spring of 1868 that the first account of a honey extractor was published in this country, and of course in the American Bee Journal.



Andrew Joplin, of Santa Ana

As my hands were full at that time, I did not attempt to make one until the next spring, when I used a small molasses hogshead for a tub, with wooden shaft and reel and a large wooden wheel with a strong cord running from the wheel around the shaft. Well, it worked! and I took from one hive that season 240 pounds of extracted honey. That fall I visited Moses Quinby, with whom I had quite an amount of correspondence, and purchased several hives, for one of which, containing an imported queen, I paid \$35. He told me he had made an extractor the previous spring, using the gearings of an old farm fanning mill to secure the necessary motion, but as the season was poor he had been unable to use it.

I was delighted with Mr. Quinby, for he seemed to be a large-souled man, as well as an extensive beekeeper. Nothing seemed to delight him more than to be helpful to others. Through him I learned of his brother in New York, a commission merchant of the old type, as honest as the day was long. He told me later that every pound of white honey sold that year in New York for 50 cents a pound; that is, honey, glass box and all, wholesale, which would make it about the same as this year.

Moses Quinby was the first to suggest and use a hand bellows smoker. I believe it impossible for the younger generation to realize the difficulties attending the rapid manipulations of hives without a smoker. We used for the most part a stick of dry rotten wood, setting one end on fire by the kitchen stove. If it was not sufficiently decayed, it was likely to go out, and if too rotten it burned too fast and our face and eyes grew red as we blew the smoke among the bees, and sparks, too, and our clothes were sometimes set on fire. So I have no disposition to say that the former times were better than today.

Soon after the honey extractor came into use, extracted honey was shipped to the city, and I remember very distinctly D. W. Quinby's letter in, I believe, the American Bee Journal, asking beekeepers not to send any extracted honey to New York, as there was no demand for it. Some different today!

There was no comb-foundation in those early days, and we saved very carefully every scrap of white comb, cutting it into small pieces one inch or more square, if we had enough of it, and dipping one edge into melted wax and sticking it into our supers for starters and guides.

It was about 1880 that comb-foundation first came into general use, perhaps a little earlier, and has been a great help in developing the business of beekeeping, giving us straight combs of even thickness, with a great saving of wax.

Sixty years ago the wintering of bees was but little understood, and largely shrouded in mystery, while today the principles of successful wintering are quite generally known.

Brood diseases have been carefully

studied, the symptoms fully described and best methods of treatment given, so the average beekeeper may not long be in ignorance as to the condition of his bees. This alone is a tremendous gain over our knowledge of a few decades ago.

The scientific rearing of queens has become a well established business, enabling the small beekeeper to secure queens at a reasonable price or enjoy the fun, himself, of rearing enough for his own use.

Magazines devoted to the interests of beekeepers have multiplied, some of them to meet with an untimely end; yet they have, perhaps, been the most efficient means for the spread of a correct knowledge of successful beekeeping.

A large number of books on artificial queen-breeding and beekeeping have been published, all of which have been most helpful.

Outyards have become common in many parts of the country and the auto-truck has been pressed into the service of the enterprising beekeeper and found almost as much a help as movable combs, the honey extractor, or a reliable smoker, in increasing the products of the hive. Little was known of the honey resources of the country 60 years ago, while today we have a very general idea, from the Atlantic to the Pacific, and from Manitoba to the Gulf. Some sources of honey have nearly disappeared, as basswood; while others, then almost unknown, have become of great importance, as alsike clover, sweet clover and alfalfa.

We did not have, in the former years any houses for the sale of beekeepers' supplies, while now you can buy anything from a three-eighths-inch nail to a \$50 extractor, hives, foundation, sections, smokers, queens, cages, etc. In fact, everything a practical beekeeper wants, and a great many things he has little use for.

It was not my good fortune to become acquainted with many of the extensive beekeepers of sixty years ago. I have spoken of meeting Mr.

Quinby; I also met Mr. Harbison in Sacramento about 1875. He was at one time very extensively engaged in beekeeping on the Pacific Coast, and was perhaps the most successful producer of comb honey in California. He seemed an exceedingly modest, retiring man, for one who had met with such success, and I doubt if his life and work were fully appreciated by American beekeepers.

Capt. J. E. Hetherington began beekeeping on an extensive scale soon after the close of the Civil War. He was an exceedingly active man and soon became one of the most extensive beekeepers of the east. His life and work were a great stimulus to keeping outapiaries here in the East. It was a great pleasure to have known him.

What a wonderful period have the past sixty years been in developing the business of beekeeping in America! And yet, perhaps, we should not feel too much elated over what has been accomplished, when we remember that today, probably, not more than one beekeeper in four takes a bee journal, or one in three who has bees in a movable-comb hive, ever handles them any more than if they were in box hives. There is still work ahead if we would reach the high level to which we aspire.

Vermont.

Sweet Clover in Canada

"Its presence this year in quantity has dispelled some of the notions formerly held by many beekeepers. Lack of acreage must have been the cause of the claims being made that it is a slow yielder. A friend of mine near me had a very strong colony on scales, and in one day they gained 23 pounds—nothing slow about that. One very strong colony at one of our outyards stored just about 500 pounds in five weeks, and fully one-third of the days were unfavorable for bees working. But this colony has during the last three years stored about double the amount of any others in the yard."—J. L. Byer in October Canadian Beekeeper.



Mendleson's famous Piru apiary

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.
Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, \$1.50 per year; five years, \$6. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

(Copyright 1920 by C. P. Dadant.)

THE STAFF

C. P. DADANT Editor

FRANK C. PELLETT Associate Editor

MAURICE G. DADANT Business Manager

THE EDITOR'S VIEWPOINT

Our Cover Picture

The queenbee shown on this month's cover is reproduced from Barbo's famous work, "Atlante Di Apicoltura," which was published in Milan, Italy, about 1873.

These microscopic studies were engraved by Designer Clerici and were published in plates to the number of 30, at 14 lire for the set (\$2.80). Count Gaetano Barbo, the author of these microscopic studies, was a man of leisure, who made beekeeping a life study. He died in September, 1909.

Happy New Year

For the many compliments, praise, good wishes, that we are receiving, perhaps more than ever before, and from every direction, even from across the seas, we return our thanks. The American Bee Journal will try to deserve still more.

To you, reader, beekeeper, we likewise wish success. May your bees winter safely, breed early, multiply freely, harvest honey copiously, and fight their enemies successfully. May your honey be well flavored and light in color. May your children be healthy and of clear complexion, as they are sure to be if they eat honey in plenty. May your neighbors be kind, as they should be if you give them the glad hand and an occasional comb of honey, to smooth over any bitterness from bee stings or other troubles, imaginary or real. And, in conclusion, may you read the American Bee Journal, as well as all the other bee magazines, till the end of your days! Amen!

Stenographic reports.

Only a few of our beekeepers' meetings are reported wholly by stenographers, and in few of these cases are the stenographers acquainted with beekeeping. This causes some very incongruous situations, for a stenographer who does not understand the meaning of what she is reporting is likely to make some very ludicrous mistakes. A condition of this kind is frequent in the published reports of the Illinois State Beekeepers' Association. While I was President of that Association I insisted upon reading the manuscript myself, before it was printed, which required two or three days, and oc-

asionally I threw out some 10 or 15 pages of report which had "neither head nor tail."

The report of 1919 is now upon my desk and I find the usual number of "quid pro quos," which must be quite puzzling to the reader of such a report. For instance: On the question of whether the bees could puncture grapes, I stated that the birds did the greatest damage and that the bees gathered only the remnants. The stenographer made me say: "The holes made by the birds are usually all on one side of the bush (read bunch). In another place, I spoke of "having the combs straight in the frames." The stenographer got "the combs stretched in the frames."

A beekeeper asked: "What is the difference between the modified Dadant frame and the Langstroth?" The stenographer put it: "What is the difference between the Modified Dadant Hive and the last issue?"

Langstroth," "last issue!" Sounds very much alike, don't it? But the meaning is somewhat different.

Then the reply was similarly garbled. I wonder whether any of the speakers at these meetings finds his or her words reported so that he or she will recognize them!

There are three remedies for this trouble:

1. Quit employing stenographers who, however competent in ordinary matters, are thoroughly incompetent in beekeeping terms.

2. Employ only stenographers who are beekeepers themselves.

3. Let each speaker's talks be sent to him for approval, or let an official of the Association pass upon the statements made, rejecting all that do not seem plausible and intelligible.

In the long ago, Mr. Hutchinson, who was Secretary of the National, used to secure for the reports a stenographer who was thoroughly acquainted with the terms and technical expressions in beekeeping, so that no one needed to blush in finding himself in print as having stated a lot of nonsense.

These difficulties have existed for 15 years or more in the Illinois Association reports, and they probably exist also in other stenographic reports of bee meetings.

Cure of Foulbrood by Fasting

Schirach (1771) was the first man, to our knowledge, to recommend causing the bees to fast in order to cure foulbrood, or, as he called it, "false brood." He wrote:

"The most simple remedy for 'false brood' is to remove all the combs of the hive, which are infected with it, and to cause the bees to fast for two days, after which one may give them some new combs, and give them the remedy prescribed at the chapter 39."

This remedy consisted in honey diluted in hot water and flavored with nutmeg and saffron.

Deceitful Names

Our attention was called at the same time and by two separate parties to advertisements of cheap syrups, mixed with a small quantity of honey by two different packers, the one in the South selling it under the name of "Honey Gold," the other in the Central West selling a similar product under the name of "Red Clover." The latter product is labeled as containing 5 per cent of honey and 15 per cent of sugar syrup, with 80 per cent of corn syrup.

Of course, these names of "honey gold" and "red clover" are intended to give the impression that they are high grade products, while the syrups so named have probably a value, for sweetening, of much less than honey.

These people are evidently keeping within the law. We cannot expect them to change their labels. But we should take a lesson. When we have a product much higher in value, we should advertise it in all possible ways and let the people understand what a great difference there is between real honey and those corn starch products which sell only because so well advertised.

Alsike Clover

Farmers' Bulletin 1151, U. S. Department of Agriculture, shows us that alsike clover can grow better in a pot completely submerged in water than in ordinary normal conditions. How many of us knew that? It is a wonderfully good plant for honey, in many districts, and it would pay to grow it in place of red clover, for it is a better stock food. It has finer stems.

Iowa Has Good Crop

There are few people in Iowa who appreciate the amount of honey produced in that State. A recent estimate was made of the amount of honey produced in Woodbury County the past season. As nearly as could be determined, 1,500,000 pounds were produced in the one county in 1920. This particular county probably has more large producers than any other in Iowa. Sweet clover is the principal source of nectar. It would be interesting to know how many counties in the entire country produce as much honey as Woodbury County, Iowa. The crop in the western part of the State was far better than in the eastern part.

Push Local Sales

In the Eastern States many beekeepers report their entire crop of honey sold at good prices. In the west some large producers report most of the crop still on hand and no demand. The future price of honey depends to a great extent upon the present activity of the beekeeper in stimulating the local markets. If every beekeeper who has sold his own crop will use every effort to handle some of the crop still in the hands of the less fortunate producer it will help greatly toward preventing a crash in prices. We must expect a decline to keep pace with the drop in prices of other commodities, but it need not be a crash.

Now is the time when every producer should do everything possible to extend the sale of honey. If the beekeepers of the east will help to dispose of the surplus in the west our future markets will benefit greatly from the effort.

Increasing Consumption

According to F. B. Paddock, State Apiarist of Iowa, the consumption of honey has increased in that State by one-third in the past three years. This is the period covered by the work of his department, which was established by law on July 1, 1917. While the department has helped to increase production by the spread of information concerning better methods, the publicity attending such efforts has interested the general public and increased the consumption of honey at home. The beekeepers of any State can make no better investment than to secure a department of beekeeping at the agricultural college. It is interesting to note that where the best work is being done at the colleges of agriculture, prices of honey run highest and the demand is best. In our news columns mention is made of total production of Iowa beekeepers.

Possible Usefulness of Moth Larvæ

They say that there is "nothing new under the sun." But I believe this is news:

Mr. Etienne Giraud, of Le Landreau, France, writes us of a physician who is seeking a serum for curing tuberculosis. This Dr. Charron, of Nantes, holds that the bacillus of tuberculosis is enclosed in a waxy envelope which nothing, so far, has been able to destroy. Knowing that the moth-worm eats up beeswax, he is trying to produce a serum which would have the same power, and holds that he is succeeding in producing it, and that the gastric juice produced by those wax-moth larvæ serves in dosing it and testing it. He has so much faith in it that he has put into the papers an advertisement asking for moth-worms, for which he offers 500 francs per kilogram (a trifle better than \$14 per pound, at exchange rates). A copy of this advertisement is under our eyes.

The question is to secure safe ar-

rival of the worms. So we may expect some day to see advertisements of moth-worms, safe arrival guaranteed. This is earnest. Tuberculosis is such a dread disease that it is worth while for the world to try all sorts of remedies. We are told that the Academy of Medicine, of Paris, is to make an investigation of this discovery and pass upon its efficacy. In case of success, Dr. Charron would be immortalized like Jenner, Pasteur, etc.

Meetings

Our editor has, for years, promised to visit beekeepers' meetings in the southeast. He is now planning to be in Wilmington, North Carolina, at the State meeting of beekeepers, January 11. From there he will go to New Jersey, at Trenton, January 13. Mr. Elmer G. Carr, of Egypt, N. J., reports a membership of 490 members in New Jersey, and has arranged a 2-days' program, in which there will be addresses from the following people: President Richard D. Barclay; Dr. Geo. H. Rea, of Ithaca; Howard M. Myers, of Ransomville, N. Y.; Charles H. Root, of Red Bank, N. J.; Dr. Thomas J. Headlee, of New Brunswick, and C. P. Dadant. A banquet will be held at the Carlton Restaurant on the evening of the 13th.

From New Jersey, the editor will go back to South Carolina, stopping at Washington, D. C., the 15th and 16th, and attending a meeting of Virginia beekeepers at Lynchburg on the 17th. Meetings are to be held at Clemson College, Anderson, Greenville, S. C., January 18 to 21; from there he will go to Nashville for the 27th.

Beekeeping and Aviation

It is written in the fables of mythology that Dædalus, being a prisoner in the Labyrinth of Crete, with his son, manufactured some wings out of birds' feathers fastened together with beeswax and that he and his son escaped out of the Labyrinth by this means. But the son, heedless, as many young people are, flew too high. The sun melted the wax of his wings and he fell into the Egean Sea. Our modern aviators have not yet resorted to beeswax to fasten together the wings of their planes. Yet they are not much afraid of the sun's heat when they fly too high. Many pretty stories like this are shattered by the discoveries of modern science and daring. Too bad!

Does the Queen Know the Sex of Her Eggs?

It is well known that the queen rarely makes a mistake, when she lays her eggs, never laying worker-eggs in drone-cells, and rarely laying drone-eggs in worker-cells. Does she then know the sex of the egg which she is about to lay? Reaumur thought so, and said so, which excited against him the feelings of

his neighbor's wives in the country, as they refused to believe that a simple "fly" was endowed with a faculty of which they were deprived—that of knowing beforehand the sex of their progeny.—(Huber's Unedited Letters.)

Poisonous Sprays

The Purdue University Apicultural Experiment Station publishes in Bulletin No. 247, an account of experiments by Dr. W. A. Price upon the poisoning of bees by solutions of arsenic, such as lime sulphur, arsenate of lead, etc. The tests and tables are too extensive to take place in our columns. It is sufficient to quote the conclusions, which show that a very small amount of arsenic is sufficient to kill bees; that the bees work freely on sprayed trees and that, for the sake of the bees, fruit trees should never be sprayed with arsenical solutions while they are in bloom.

The Mid-West Show

The Mid-west Horticultural show, held at Council Bluffs, Iowa, from November 15 to 20, was probably the biggest thing of its kind ever staged in America. The exhibits were very extensive and of fine quality. Through its fortunate affiliation with the Iowa Horticultural Society, the Iowa Beekeepers' Association was able to have hive products recognized as allied to horticulture. Honey was accorded a place in the premium list and a few men made very creditable exhibits. The beekeepers, however, were far behind the other lines in the extent of their showing.

There were exhibits from county associations of potato growers in Wisconsin, as well as dozens of individual exhibits from various sections. There were wonderful exhibits of cut flowers from many States. Apples from Minnesota and Wisconsin were arrayed against apples from Missouri and Arkansas, but only the Iowa and Nebraska beekeepers living in the close vicinity of Council Bluffs made exhibits.

Beekeepers complain of a falling market, yet when a great show, put on at a cost of many thousands of dollars, offered them space and premiums, they overlooked the opportunity of bringing their product to the thousands of visitors who attended. The few beekeepers who did come put up very fine exhibits and were well paid for doing so, both in premiums and in the advertising which their products received.

We are advised by the management that bee products will be made a permanent feature of the show and that if possible larger premiums will be offered next year. We sincerely hope that beekeepers of the middle west will wake up to the importance of a really big display, such as is put on by apple growers, potato growers and florists.

SIXTY YEARS AMONG THE BEES

By Frank C. Pellett

DR. C. C. MILLER'S beekeeping and the American Bee Journal came near being twins. The Journal was founded in January, 1861, and on July 5, of the same year, the Doctor became a beekeeper. Dr. Miller became a beekeeper without previous intent. A stray swarm passing his home was hived in a barrel by Mrs. Miller while he was in Chicago on business. Mrs. Miller was so badly stung that she was sick abed as a result, and ever afterward was so sensitive to stings as to prevent her from having anything to do with bees. Doctor Miller knew nothing about bees at that time, but soon began to feel a great interest in the colony in the sugar barrel. They were wintered in the cellar and the following spring he sawed away that portion of the barrel which was unoccupied. Later he bored holes in the top of the barrel and placed a good-sized box over it for surplus honey. The first season he secured a swarm, which was hived in a new box-hive made after the directions of Quinby. He also bought two swarms to be hived in boxes which he furnished. He thus came to the close of his second season with four colonies of bees.

The next year he bought Quinby's book and some movable-frame hives. According to his account in "Forty Years Among the Bees," it was not until 1867, when he took 131 pounds of honey, worth 25 cents per pound, that he found the balance on the right side of the ledger. He began the next year with seven colonies and had \$10.40 more than the total cost of bees, hives and fixtures to that date. His experiences were such as are common to beginners everywhere. There is no royal road to success in beekeeping, as in other lines. He speaks as follows:

"At any rate, my friends could no longer accuse me of squandering money on my bees, for there was that \$10.40, and the time I had spent with the bees was just as well spent in that way as in any other form of amusement. Indeed, at that time I am not sure that I had much thought that I was ever to get any profit out of the business. Certainly I had no thought that it would ever become a vocation, instead of an avocation."

It is the little things that change the current of our lives. We often go about looking for something big, while neglecting the little things which would grow big. The incident of the hiving of a swarm of bees in a sugar barrel, during his absence from home, could hardly have been looked upon as an important event in his life by the Doctor. Yet, as a result of it, he became the world's best loved, if not the world's best known, beekeeper, leaving untold thousands to mourn his passing when he crossed the Great Divide.

When the news came that Doctor Miller was dead, it was a real shock. Although we had expected it for many months, we were not fully prepared for the actual event. The senior editor and he had been close friends for many years. We felt that the American Bee Journal, with which Doctor Miller had been closely associated for so many years, should give an extended review of his life. None of us felt equal to undertaking anything of the kind just then. It seemed best to make a simple announcement of his passing and later, when the wound was not quite so fresh in the hearts of the thousands who loved him, to try to pay a little tribute to his memory.

In the December, 1915, issue of this Journal, appears an announcement of Dr. Miller's personal recollections. In that announcement, written by Mr. Dadant, is given something of the

editor's personal appreciation of the work of our lamented friend. In the January, 1916, number begins the series of personal recollections. The Doctor was rather hesitant in preparing them. He seems to have had the impression that the editor wanted them to serve with an obituary notice, and that they were to be carefully laid aside until he had passed on before they were used. It was nearly two years from the time he was asked to write them before the letters came to hand. We believe that our readers who have kept their old Journals will delight in reading again those letters in the January, February and March, 1916 numbers. There is not much said about his beekeeping experience, but he gives us a peep at the principal events of an interesting life. Regarding beekeeping, he wrote as follows:

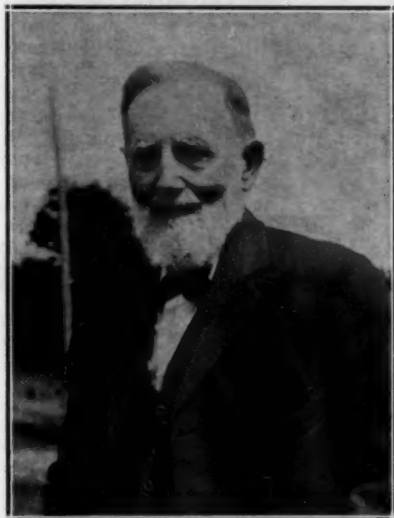
"To get a goodly sum of money for a crop of honey is a pleasure. But I don't think that alone would have held me to beekeeping. For every minute I have spent thinking of the money I'd get from my bees, I've spent twenty minutes—more likely an hour—in studying over plans and projects for improvement in the management of bees. And at 84 I think I have just as many schemes cooking as I had at 30. Most of them have turned out the wrong way, but enough have succeeded to be of some use. I never made any great invention, never had the slightest thought of inventing a hive; but some little thing here and there, perhaps making some slight change in the plans and implements of others, entitles me to credit some things."

It was in 1869 that he became a subscriber to the American Bee Journal, and in 1870 he began writing for its columns. He wrote very sparingly for many years. It was only later, when he wrote from long experience and careful observation, that he turned out copy freely. It is for this reason that his writings are of special value.

At the beginning of the year 1885, a "Query" department was established in the American Bee Journal by Thos. G. Newman, who was then editor. His plan was to send the questions to a number of different persons who were prominent in the beekeeping world. Several contributors would thus reply to the same question. Within a few months after this department was established, Doctor Miller's name began to appear. When George W. York bought the Journal, in 1892, he had never owned a bee. For some time previous to that date he had been employed by Mr. Newman, and so was familiar with the mechanical and clerical duties of the office. Casting about for expert assistance, he came more and more to depend upon Doctor Miller. At the beginning of the year 1894, the "Question Department" was established with the Doctor in charge, and he continued to answer questions for this Journal's readers until the time



*Cordially Yours,
C. C. Miller.*



Doctor Miller, as he welcomed the associate editor on his visit to Marengo

of his death, nearly 26 years. In addition to answering questions, he wrote much of the editorial matter and was designated as associate editor, a position which he continued to occupy until after the Journal passed under the present management.

Doctor Miller expressed himself as enjoying his work, answering questions, best of all his literary endeavors. In addition to his editorial work for this publication, he also conducted a department in *Gleanings* for many years, as well as contributing frequent articles to such magazines as *Youth's Companion* and *Country Gentleman*.

Doctor Miller was the most conspicuous example of success with the small hive. With the general adoption of the 8-frame hive, hundreds of men failed to make a success of honey production, because their brood-chamber was too small to enable the bees to build up to proper strength in time for the harvest. Doctor Miller used two hive bodies for breeding and later, when the honey-flow began, confined the bees to one hive body, thus forcing them at once into the sections. He was remarkably successful as a producer of fine comb honey, and probably secured the largest per colony average for an entire apiary.

When Dr. Miller explained the shortest cut to successful treatment of European foulbrood he rendered an incalculable service. Up to that time there was much uncertainty concerning this disease and the general methods of treatment made matters worse. He met and conquered the disease in a single season, with little available information as to the proper method of treatment. As a student of bee behavior he had few equals.

One thing that he preached constantly was the importance of selection, and breeding only from the best queens. We reproduce herewith a brief exhortation on this point in his own handwriting.

The pictures accompanying this story were taken by the writer at the time of a visit to Marengo, some months previous to his death. The Doctor took special delight in a bed of gladiolas. Always a lover of fruits, flowers and out-door things in general, he took to the breeding of gladiolas in his old age. He had some very fine ones and originated some new varieties which might have become commercially popular had he lived to continue this work. In his earlier life he had devoted much attention to fruit growing. The little farm, just outside Marengo, where he spent most of his life, was at one time largely planted to fruit trees and vines. The approach to his house was lined with a double row of basswood trees, planted for the combined purposes of supplying pasturage for the bees and delighting the tree-loving eyes of the proprietor. In the early days of his beekeeping experience, he was employed by a music company and spent three years in the city of Chicago. Those were years of longing for the country and the bees on the farm at Marengo. He has written briefly of that period of his life and mentioned a bunch of weeds that grew in a vacant lot which were a real pleasure to him. His special delight was a bunch of white clover that grew on Clark street. All his later years at Marengo were much brighter for the three dismal years spent in the heart of a great city.

Doctor Miller spent a long and useful life of nearly ninety years, sixty years of which he was a beekeeper. He will long be remembered by those who live by the labor of the busy bee. We can add nothing to his fame and can but poorly express the measure of appreciation of his labors which beekeepers generally agree is his due.

Already a movement is on foot to erect a permanent monument to his memory. We hope that the subscriptions will be liberal and that

something worthy of his name may be done.

OUR SIXTIETH ANNIVERSARY

This is the sixtieth anniversary of the founding of the *American Bee Journal*, the oldest bee magazine in the English language. The first number appeared in January, 1861; an inopportune time for launching a new enterprise. It will be remembered that the Civil War began in that year. Although the Journal continued throughout the year and completed the volume, it was then suspended until after the close of the conflict, resuming publication in July, 1866.

At the close of the first year the following announcement was made:

"With this number (which has been somewhat delayed from unavoidable causes), we conclude the first volume of the *American Bee Journal*, and now announce that the publication will be suspended for a year, and then resumed if the state of the country will admit, and those interested in bee culture desire it."

The first volume contains many articles of permanent interest. Dzierzon's theory of parthenogenesis was outlined at length and the value of the Italian bee was brought prominently to the attention of the beekeepers on this side of the Atlantic. Samuel Wagner, the editor, had made an unsuccessful effort to import bees from Italy in 1855, and was probably the first to bring them to the attention of American beekeepers. Mr. Wagner, together with Rev. Langstroth, imported some queens in 1859, but the imported stock was lost during the winter. Their first successful attempt was in 1860, when Mr. Wagner and Richard Colvin succeeded in getting some queens from Italy. In the meantime, however, S. B. Parsons had secured a shipment a month earlier, so Mr. Wagner, the first editor and founder of this Journal, was



Doctor Miller in his apiary toward the end of his active beekeeping career

not the first to import queens from Italy whose progeny survived. The first volume is still in demand by students of beekeeping, who wish authentic information on scientific phases of the subject.

Following the resumption of publication, several beekeepers began to write for the Journal, whose names have since become known the world over. Langstroth was a contributor almost from the time the Journal was started. Henry Alley, Adam Grimm, Moses Quinby, Elisha Gallup and the Baron of Berlepsch, are among those whose names appear frequently in early numbers. A. I. Root's first contributions appeared under the name of "Novice," and continued for some time. His first series, entitled "Experiences of a Novice in Beekeeping," recite the usual difficulties of a beginner in an entertaining way. This series began in March, 1867. His account of securing his first bees by paying a man who stood by, a dollar to catch a passing swarm and hive it in a box, and how he lost it by placing it in the hot sun so that the bees absconded, is typical. Later he describes his first effort at transferring and tells how the robbers carried off the honey of the colony while he did the job. When he paid \$20 for an Italian queen he had started on his career in earnest. At the end of the first season, after trying all kinds of experiments with his new hobby, he stated that the season had not been profitable financially, but that if experience was worth anything he had done well. Judging from subsequent events it must have been worth something.

Charles Dadant made his first contribution in November, 1867, and introduced himself as a newcomer from France only four years before. He promised occasional translations of articles from the French "Apiculteur."

In January, 1868, he began telling of his early experiences under the title, "How I Became an Apiculturist." An amusing account is given of a pastor at a village near Langres, in France, who was taking the honey from his bees when he was visited by a butcher who was to be married the following day. The butcher refused to take care lest he be stung, when warned by the pastor, saying: "I kill oxen, I need not fear flies"; he hung over the open hives until he was so badly stung that when, on the following day, he called for his bride, she at first refused to recognize him.

As a little boy, Charles Dadant received a colony of bees in a skep from the old pastor already mentioned. He soon had made a leaf hive after the pattern of Huber, and was ready to enter upon his long lifetime of experiment. A flood destroyed a portion of the village and ruined his bees. Later he captured another swarm, at the time of a holiday, when a crowd of boys found a bee-tree and robbed it of its honey. He returned at night with a straw skep and hived the bees, which were clustered on a limb. The bees were placed on a roof of the store-house where he was employed. Since the roof was of metal and very hot, he was hard pressed for something to serve for shade. Customers were waiting and nothing could be found but the cover of the cistern. That night he was awakened by the sound of splashing water and screams, and in terror awakened all the occupants of his boarding-house to see whether any had been drowned. Investigation proved that a big white cat had fallen into the cistern.

From 1868 until his death he continued as a frequent contributor to the American Bee Journal, though it did not come under the editorial management of his son until many years later.

New Inventions

In these early numbers much space was given to the discussion of patent hives, and many different kinds received attention which have long since been forgotten. There were many bitter discussions regarding the merits of the various types, and Langstroth came in for much serious criticism. The honey plants received much attention already. The white sweet clover or *melilotus* was so prominently brought to the attention of the beekeepers that they began to scatter seed everywhere, although it was generally regarded as a bad weed, for many years. Borage, chicory and others were recommended for cultivation.

The invention of the extractor, of comb foundation, the development of the pound section and the consequent period of comb-honey production all received due attention in the Journal. A great deal of attention was given to the different races of bees. A number of men made trips abroad to find better bees. Although bees from many countries were introduced and given a trial, interest in all but the Italians gradually died out.

In 1869 there were more than sixty patents recorded on beehives and appliances. This will give an idea of the amount of correspondence in regard to appliances. However, Samuel Wagner was a good editor and most of the communications which found a place in the columns of his publication were of real interest to his readers. It is probably true that the material appearing, during his term as editor, was of greater value than at any similar period of the history of the Journal.

It was in October, 1870, that Dr. C. C. Miller first appeared upon the scene, but his connection with the Journal is reviewed at length elsewhere. Soon after, James Heddon and G. M. Doolittle began to furnish an occasional contribution, and the following year A. J. Cook wrote an article now and then.

In the seventies, several other bee magazines were started, some of which continued publication for several years. All, however, except *Gleanings*, have long since been suspended. Most of these were started after the death of Samuel Wagner, who died on February 17, 1872. He was nearly seventy-three, so the Bee Journal was a child of his old age. He was very modest, and shrank from anything having the least appearance of personal display. So far did he carry this peculiarity that he could never be prevailed upon to allow his portrait to be taken. L. L. Langstroth wrote an account of his death and paid high tribute to the departed editor. The Journal was conducted for a time by the son, George S. Wagner, although it has the appearance of having been largely edited by Langstroth. It was in June, 1872, that the present editor, C. P. Dadant, made his first contribution to the Journal.

Although the first year of its life the American Bee Journal was published

*My young friend for
best success, get pure
stock, keep tab on every
pound of honey taken from
each colony, then breed
from the best storers that
are all right in color and
temper.*

Cordially Yours,

1/31/16.

C. C. Miller.

in Philadelphia, it was published in Washington from the time of its resumption, in 1866, until the close of 1872. The January, 1873 number appeared with Chicago as its place of publication, and W. F. Clarke as its editor. Typographical errors are the bane of an editor's life. The dropping of a letter "T" in the heading of an account of the meeting of the German Beekeepers' Association, in the August, 1873, issue, made it read in this astonishing way:

"In what manner can he bees be prevented from making useless excursions in search of honey during the early spring months?"

This led to a column editorial of explanation in the following number and some rather pointed comments on the nature of the "He Bees."

The August, 1874 issue conveys the news that the American Bee Journal has acquired the National Bee Journal mailing list, that the former editor of that magazine, Mrs. Ellen S. Tupper, will be joint editor with W. F. Clarke and that Thomas G. Newman will be business manager. The December issue shows Cedar Rapids, Iowa, as the place of publication. This was a short-lived arrangement, however, for the July, 1875, issue was again sent out from Chicago. How long Clarke's connection with the Journal continued is not clear. The May, 1875 number is the last bearing his name, or that of Mrs. Tupper, as editor. A biographical notice in the July 13, 1881, issue indicates that he sold the Journal to Newman in the December following its purchase in 1873. It is stated that Clarke never owned more than 24 colonies of bees at one time.

At any rate, after several years of silence, Clarke again became a contributor to the Journal under the editorship of Thos. G. Newman.

In the eighties, W. Z. Hutchinson, later the editor of the Beekeeper's Review, became a contributor. In 1884 George W. York began work for Newman as an office assistant. He in turn purchased the Journal and became its editor in 1892. In 1881 the Journal became a weekly, and continued as such until July, 1907. During 1883 and 84, both weekly and monthly editions were published.

In 1912, Mr. York having decided to enter another line of business, the American Bee Journal was purchased by the present owners, Dadant & Sons, and removed to Hamilton, Ill., where it has since been published. The May number of that year was the first under direction of the present editor, C. P. Dadant. It was in the same year that the name of the present junior editor, Frank C. Pellett, first appeared as a contributor to its columns. In October, 1915, Mr. Pellett came to Hamilton and remained until the following March, assisting the editor with the work of the Journal. At that time he became staff correspondent and continued in that capacity until August, 1918, when he removed his family from Atlantic, Iowa, to Hamilton and became associate editor.

Although probably a hundred other bee magazines have sprung up from time to time, the American Bee Journal is the only one in this country devoted exclusively to beekeeping that has survived from the early days. Gleanings was established in 1873, but in addition to bee culture it has a home department and gives some attention to gardening, etc. A number of magazines have attempted to combine interests of fruit, poultry or gardening with beekeeping, but most of these have been short-lived.

HIVE TOOLS, AND HIVE TOOLS

By Arthur C. Miller

Hive tools, what are they? Jack knives, screw-drivers, putty knives, chisels, old files, pieces of broken carriage spring, old poker, in fact, any sort of stiff piece of metal which will serve to pry apart gummed-together hives and frames.

Some beekeepers say they cannot be bothered with a special tool for the purpose, that it is always getting lost or mislaid, that most of them are awkward to carry, or have sharp, scratchy corners, etc. The same is true of substitutes. Look at the notched hives and supers and the broken top-bars, and one may readily guess that something besides a proper implement has been used.

Of the hive tools on the market, some are dinky little toys, too small to be handled effectively, too thick to push readily between supers, and often brittle and easily snapped, or soft and readily bent. Others are of proper thickness, but from shape or size, present disadvantages in use. Some offer no good surface to push

against when forcing them between bodies and supers, and the hive once open, they furnish no means for prying up frames, cleaning out rabbets and getting into sundry corners.

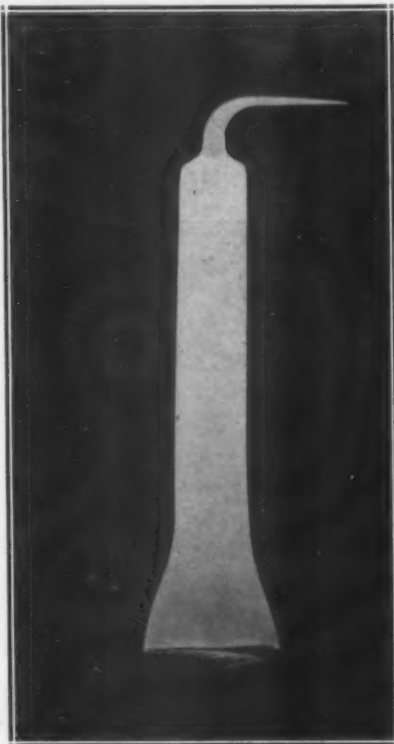
The tool described below has been years in "growing." In the beginning it had a rather narrow blade at one end and a short and pointed hook at the other. The hook stood at right angles to the plane of the blade and was an unpleasant thing to step on when it chanced to get on the ground. The length of the tool was but 5 or 6 inches. In use it showed something to be desired, and a new one slightly different was made, and from season to season they were altered and made larger. The hook was turned parallel to the blade and the end of the hook was flattened. The width of the hook was changed, lengthened, its edge thinned and, in fact, it took several seasons to develop the hook alone. The curve, the angle of it in relation to the blade, its length, the space between its inner surface and the flat part of the tool, all are the result of conditions met in use, and all have a reason. Today the tool will carry flatly in one's inside coat pocket, or in one's hip pocket.

The wide blade will slip readily between the hive edges without mutilating them, the curved hook furnishes a smooth surface to push against when forcing the blade in, and the inner surface of the curved hook has the corners ground square for scraping either the edges of the hives and supers, or between top-bars or cleaning out rabbets. The width of the blade end is correct to clean tops of frames or hive edges. Sometimes the hook is handier on the edges and sometimes the blade. Held vertically in the fist the wide blade readily scrapes floors, super covers and similar flat surfaces.

Take the picture to your blacksmith and have him make one like it and temper it to good spring temper. Here are the dimensions: Length over all, 8 inches; blade, $1\frac{3}{4}$ inches wide; hook, $1\frac{3}{4}$ inches from inside of curve to tip. From the taper of the flat part of tool to inner surface of hook is 1 inch. Hook is three-eighths of an inch wide. Get that curve of the hook, then when the end is slipped under the end of a top bar the curved part of the hook acts as a fulcrum, and will roll smoothly on the adjacent frame.

Have the end of the blade ground to a putty-knife edge and the end of the hook to a thin screw-driver edge. The edges of the main part of the tool are rounded and smooth, so also of the outer part of the hook, but the inner surface of the straight part of the hook is ground flat and square with the sides to give good scraping edges.

What do they cost to make? A few years ago they cost me, all forged, tempered, ground, nicked and polished, 70 cents apiece. Now they cost \$1.50 each. I am particular



The Miller hive-tool

about the grinding. They are made of Jessop's steel and well tempered. Once in a while one proves too hard and an edge may snap, but unless too large a piece is nicked out, it can be re-forged.

Why the nickel? It retards rusting, and is nice to handle and look upon. And such is Miller's hive tool. I have about a dozen made each year and try to keep several in each yard. By carrying the tool in my hip pocket when working about the yard it seldom gets lost, and is always ready for use. But some visitors insist on buying one now and then, so I have to replenish my supply from time to time.

Rhode Island.

NOTES FROM TEXAS

The past season has been quite favorable for both bees and honey. An open spring put the queens to work early with abundance of pollen to keep things going until the nectar started, when all the colonies were evened up and heavy work commenced. Extracting should have taken place in June, but owing to forced absence from home it was deferred until July, when the supers were filled to their capacity. Seventy pounds average was taken off, and at this writing (Oct 19) there is about the same amount stored. The picture shows stands I am using, which, for convenience and strength, and also durability, cannot be excelled. They measure 2 feet by 4, strong of construction, easily accessible on both ends, and are supported by four cedar blocks 12 inches high, making them convenient and stout enough to easily hold all the weight two colonies would call for.

WALTER W. DURHAM,

THE QUESTION OF SUPPLIES

Read at the Illinois State meeting by C. F. Bender.

Having been called upon for a paper to be read before this convention, it seemed to me that a full discussion of this subject from the beekeeper's standpoint might be of interest. I wish to assure you at the outset, that I am in no way interested in the sale of bee supplies, but view the matter solely as a purchaser. Having decided upon my own policy with regard to the purchase of supplies for the coming season, it may be useful to give you the facts and fancies on which that decision is based.

I have just returned from a month's vacation in which I visited some of the largest supply factories, making a leisurely visit at each, with a view to learning present conditions, as well as future prospects. I will confess that I went as a missionary to these benighted brethren, saying: Lo, the poor bee man! How is he to pay war prices for his supplies, and take a chance on selling his honey next fall?

I was surprised to find that they were already true believers. They knew all that I had to tell, and much more. Instead of darkly plotting how they were to keep up the prices of supplies, they were anxiously and even prayerfully considering how these prices might be reduced. They told me that the factories must be run through the winter, if the demand next summer is to be supplied; that if they are run through this winter, materials and labor must be purchased at prices that average less than 10 per cent below the highest war prices. Coal and iron, lumber, beeswax, labor, were still selling at astonishing prices. Freight rates on those materials were higher than ever before. Taxes were a burden, interest on borrowed capital unusually high, and in many cases borrowed money was not to be had at any price. Considering all these things, it would be folly to store a large stock of supplies, in the hope of selling them next summer. The only course left was to run the factories short-handed, storing only such a stock as would certainly be sold, at nearly the present level of prices. This in the hope, not of making a large profit, but of avoiding a heavy loss.

It seems to me that our problem, while apparently the same as that of the manufacturers, is really different, because the labor employed is largely our own. Unless we are to abandon our business entirely, it will not profit us to limit the production of honey because our supplies cost us twenty per cent more than they will probably cost us a year later. It will not even pay us to limit increases on account of the high price of hives, because the net profit per colony for one season will more than cover any probable reduction in the price of hives during that year.

If these statements are accepted as facts, there only remains for us one possible question. Shall we buy our supplies now, so far as we can fore-

see our needs, or shall we wait until spring or summer, in the hope of getting them cheaper? In my mind that question, also, is easily answered. I have tried to show you that the factories and dealers are carrying only small stocks, and that a normal demand during the busy season cannot be supplied. Consequently, if we wait until the last moment, there is danger, not only that we shall be obliged to pay higher prices, but that we shall not get our supplies at all.

Our only consolations are, that we have used some low-priced supplies in the production of high-priced honey—that, as we have gone up with the commercial balloon, we must come down as it cools off, as other producers are doing, and must content ourselves with reduced profits, hoping for better times in the years to come.

My prediction is that the lowest prices for supplies during the year will be those quoted in the January catalogs. Acting on that belief, I have already ordered my supplies for the next season and expect to do business at the old stand, in quite the usual manner, in 1921.

Illinois.

QUEEN LAYING ON POLLEN

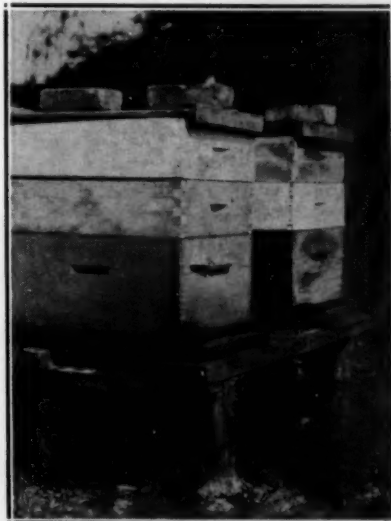
We have seen this repeatedly and have also seen a supersedure queen-cell, the basis of which is a pollen-cell in which the queen laid. Normal development takes place, and there is no reason to expect otherwise.—Bee World.

MODERN METHODS IN COMB-HONEY PRODUCTION

By E. S. Miller

In discussing comb-honey production I do not claim to present any original or untried scheme. My desire is merely to outline a method used with success by a considerable number of commercial beekeepers, a method applicable to commercial out-yards within the clover belt.

In the first place, one should begin preparation as early as August of the preceding year, seeing that every colony has ample stores, a good queen and a strong force of bees. At the time of the August manipulation there should be placed above queen excluders upon a sufficient number of colonies, supers filled with brood-combs, provided there is a prospect for a fall flow. These combs, when filled, are to be used for fall and spring feeding. The colonies should be examined again later in the season, after brood-rearing ceases, and all not up to standard in weight should be fed by inserting combs of sealed honey in place of empty combs removed. If there is not likely to be a fall crop, combs of honey from the previous flow should be reserved. If the feeding is done not earlier than three or four weeks after brood-rearing ceases, it will be found that the



Durham's hive-stand

bees of light weight colonies will have carried the honey in toward the brood-nest and the exchange of outside combs can be effected with very little disturbance.

For the successful production of comb honey, either comb or extracted, good wintering is essential, and good wintering requires not only strong colonies with ample stores, but also ample protection. If one is so unfortunately situated as not to possess a properly constructed cellar, the hives must be thoroughly packed outside and sheltered. It often happens that spring losses are much greater than winter losses. This is especially true if cellar wint red bees are set out in the spring without adequate protection. In order to avoid spring losses, some advise wrapping with tar paper; others advocate the use of hair felt, which can be purchased in sheets about one inch in thickness and cut to any size. In using hair felt, a sheet is slipped in, in place of each outside comb and another pad laid over the top. If metal covers are used, the pad may be placed between the inner and outer covers, and, as the escape of heat from the colony is mostly upward, it is very effective in retaining the warmth of the colony. For want of better protection, several newspapers are sometimes folded and placed between the covers.

Assuming that the colonies come through winter and spring in good condition, a number of them may attempt to swarm with the coming of fruit bloom. To forestall this, place above each colony sufficiently strong, a queen excluder and a hive body. This hive body should contain at the sides two frames of honey kept over from the previous season. The middle frames should contain one or two empty drawn combs and the remainder of this second story filled with frames of full sheets of foundation. Now, why this arrangement? The full combs are to guard against starvation in case of bad weather or shortage of nectar from other causes, for it must be remembered that if the colonies are as strong as they should be, and if there is no other important source of nectar up to the time of the opening of the main flow, the honey of the lower story will practically all be turned into young bees before the clover flow begins, and it is these bees which are of greatest value. Mr. Geo. S. Demuth, in his bulletin on comb-honey production, rightly emphasizes the fact that it is the brood reared within the six weeks preceding the opening of the main honey flow that furnishes the bees which are effective in storing the crop. If bees run short of stores at this time, brood rearing ceases, or slows up just at the time when it should be at its maximum. For this reason, be sure that there is an abundance of food in the hive between fruit bloom and the opening of the clover flow. The use of the one or two middle drawn combs is to induce the bees to begin working above and thus to relieve congestion of the brood-chamber and to prevent consequent swarming.

There are two general methods of procedure which may be used at the opening of the clover season in order to forestall swarming, methods which bring about results corresponding to the two conditions following natural swarming. One of these produces a condition corresponding to that of the parent colony, the other to that of the new colony. In case of natural swarming there is, in the parent colony, no egg laying until a new queen has emerged, mated and begun her duties, a period of about 17 days. In the new colony no brood emerges for three weeks following the issuing of the prime swarm. To bring about the first condition artificially, the queen is removed about the time the main flow begins. Nine or ten days later all queen-cells are removed and the colony is requeened with Italian stock or a ripe cell given from the best breeder. It is expedient to use this plan with colonies which need requeening, usually weaker stands, those which have not required the added hive body.

The second method is as follows: Remove the lower story and all of the brood, making the second story the new brood-chamber. Find the queen, and after shaking the bees in front of the hive, let her run in. The brood taken away may be used in strengthening weaker colonies or for building up nuclei. Do not make the mistake of leaving one frame of brood, as advocated by some, or any brood at all, as it will often happen that queen-cells will be started and swarming follow. If the above is carefully followed out and the bees are properly shaded, there is no danger whatever of them swarming out or absconding. It is important that there be at least one empty comb available for the queen to begin laying. The six frames of foundation serve to retard storing in the brood-chamber, thus forcing the honey into the comb supers, two of which are added at this time, the first super containing a few bait sections.

It will be observed that the above modes of manipulation insure a maximum number of bees at the time when bees mean more honey, and it cuts off brood-rearing at the time when an increased amount of brood would result in a greater number of consumers, both in the larval stage and as adults, after the flow is over. Of course, it sometimes happens that with a prolonged flow colonies may become somewhat weakened before it is over, but, on the whole, it is preferable to rearing a horde of bees at the wrong time only to consume the crop after it is gathered.

In localities where buckwheat, heartsease, goldenrod or other late summer or fall flowers furnish the main crop, the same modes of manipulation may be followed, the work being done preferably at or about the time the plants begin to yield nectar. The surplus brood will be found useful in building nuclei into full colonies for next year's campaign. At this time it must not be forgotten to place upon the hives a sufficient num-

ber of supers containing brood-combs to be filled for next spring's feeding.

Some of the advantages of the methods described may be enumerated as follows:

1. It brings about conditions similar to those of natural swarming.
2. It insures continuous brood-rearing in the springtime, resulting in the maximum number of bees at the right time.
3. It restricts brood-rearing at a time when the brood and bees would become consumers rather than producers.
4. It effectually prevents swarming.
5. It guards against starvation in case of inclement weather.
6. The plan is applicable to commercial outyards.
7. Incidentally, it is an effective mode of treatment for European foulbrood. You can cure the disease and get a crop at the same time.
8. It requires the minimum amount of labor. In the first plan there are two manipulations, first removing the queen, and, secondly, removing cells and requeening. In the second process there is but one operation aside from adding and removing supers.

The methods above outlined are not merely theory. They have been found to work out satisfactorily in practice, and while certain localities may require a modification of details, I believe that the principles are correct and worthy of careful study.

Indiana.

AN AMERICAN HERO

It appears that Voorhees, son of one of our active beekeepers, Frank Voorhees, of Raritan, Ill., was the discoverer of the method which enabled the American troops to actually "walk over the wire entanglements" during the world war. "He took two ordinary rolls of chicken wire netting, about 40 feet long and wove them together, making a mat of double width. This was rolled up loosely. When they reached the wire entanglements, they would lay one end on the ground and push the roll on before them, over the entanglement. Strange as it may seem, a body of troops could march over any entanglement in this manner with as much ease as they could march through a field of high grass." Young Voorhees died of disease in France. Keep his memory green.

A WORD FROM AUSTRALIA

We have a letter from James E. Marshall, of Geelong, Victoria, objecting to some statements made by Tarlton Rayment in our June issue. Rayment (page 199) states: "There is a beekeepers' association, but it is very small and not at all representative of the many progressive apiarists of the State."

Marshall states that in this he is wrong, that the number of members is 200 and that it does contain the majority of the progressive apiarists from all sections of Victoria. He further states that sixty attended the last conference and that in member-

ship and attendance the Victoria Association compares favorably with other States. They publish a very creditable journal, "The Victorian Bee Journal."

SIXTY-POUND CANS

What is the best way to drain all the honey out of 60-pound cans, so as not to waste any?

Answer: After drawing all the honey you can get out, heat the can a little. This will make the honey so thin that it will run out easily. Then, if you want to get every bit of it out, you can wash the inside of the can with hot water, using same water several times, until it is sweet enough to make vinegar. It will make good vinegar if you add some fruit juice and keep it warm. But you must leave the vessel open so as to allow of fermentation. You can keep flies and insects out by tying some sort of muslin over the mouth of the vessel. It first has an alcoholic fermentation, but soon turns to vinegar.

However, cans that have been washed inside with water must be thoroughly dried, or they will rust. As a rule it does not pay to use them twice for honey. Better cut the top off and use them for water pails, with a handle across the top.

JOINING THE LEAGUE

How can an individual beekeeper join the American Honey Producers' League?

Answer.—As we understand it, individual beekeepers can join through their home organization, whether local or State. The question was referred to Mr. B. F. Kindig, who has been very efficient in organization work, and he replies as follows:

"This question is mostly answered under Section 2 of Article 2 of the Constitution of the League, which is as follows:

"Any organization of beekeepers may acquire the right to elect a member of this League by applying therefor to the Secretary of the League and accompanying such application with a sum equal to \$1 for each member of such applicant association; provided, that the Executive Committee may reject any application and shall return any sum deposited if such application is rejected. When once affiliated, such organization may continue its affiliation by paying annually to the Secretary of the League a sum equal to \$1 for each member then belonging to such affiliating association, and by the further payment of a sum equal to \$1 for each member subsequently joining such affiliated association; provided, that the minimum fee for membership from any organization shall be \$100, and provided, further, that when a State or provisional organization has affiliated, no other organization from the same State or Province shall be received. The Executive Committee may modify or suspend this section for the year 1920."

"At the close of the organization meeting in Kansas City the Executive Committee met and modified the above section for the present year so that any organization may join the League by paying the initial fee of \$100. This is the condition under which the Michigan Association has joined the League. However, beginning with January 1, 1921, it will cost an organization \$1 per member for membership in the League. The matter of joining the League should be taken up by the various State Associations at their first annual meeting, and there it should be decided whether or not they wish to join the League. So far as I know at present, California, Texas, New York and Michigan are the only ones which have taken action to date. The joining of the League will in the case of many States require a readjustment of the membership fee in order that they may be able to pay the required \$1 per member.

"The Secretary of the League is H. B. Parks, Box 1048, San Antonio, Texas. All applications for membership should be addressed to him.

"Yours truly,

"B. F. KINDIG,
"State Apiary Inspector."

Section 5 of Article II of the Constitution of the League reads:

"Any person, firm or corporation may, subject to the approval of the Executive Committee, become entitled to the service of the League by paying to the Secretary \$10 per year."

As we understand this, the parties thus joining would be entitled to the same service as an affiliated organization.—Editor.

COLONY OF BEES THAT WOULD NOT ACCEPT A QUEEN

By Eugene Holloway

Will a colony of bees that is hopelessly queenless accept a queen quicker than a colony that has just been dequeened, if the hopeless

colony has been queenless two weeks or more? Some people would think they would, and I thought so until I had the experience this year, but I am far from believing that now.

This colony swarmed the 7th of June, and nine days later I examined the hive and destroyed the queen-cells, and to my knowledge two virgin queens had emerged; so I destroyed the queen-cells and did not look at it any more for two weeks, but I know it swarmed but once. Two weeks from the time I destroyed the cells I examined the colony and they were hopelessly queenless; so I gave them a comb of young brood and they reared cells and capped them, and I destroyed them and gave them a queen in a mailing cage, and I did not release the queen for 48 hours after I put her in the colony; but they killed her; so I gave this colony four queens, and they killed all of them.

I tried first the mailing cage, then the push-in comb cage, then the honey method, and then I took a laying queen out of a full colony with comb of bees, and put in the hive; but it did not do any good. Then I let them rear a queen, and in due time there were two virgins in the hive, but they disappeared; so I gave them an honorable discharge and united them with another colony.

Oklahoma.

Answer: I have always held, and your experiment confirms my views, that the best time to introduce a queen is when a colony is queen-right. Removing one queen and introducing the other immediately is the safest way. Success may be secured by other methods, but this is the surest, aside from introducing the strange queen to hatching bees.—Editor.

BUILDING UP WEAK COLONIES IN SPRING

The Seastream Plan

We were favored a few days ago by the visit of Mr. Geo. Seastream, of Pawnee, Ill., and were very much interested in his method of building up weak colonies in the spring. Mr. Seastream winters all of his colonies in the cellar, in both 8-frame and 10-frame hives. He usually has a number of them which are not up to normal strength when they come out of winter quarters and, in order to prevent spring dwindling, he uses a modification of the Alexander plan, but goes a step or two further, which yields him excellent results.

When the colonies are taken out of the cellar in the early spring the condition of each is noted and the weaker ones are all placed in one group for attention. No weak colonies are ever taken to outyards.

If the colonies are moderately strong, they are tiered up in pairs, with a queen-excluder between. If very weak, three colonies are placed on top of one another. All colonies must be packed with burlap, or anything that keeps heat and sheds rain.



Handy pail made from 60-pound can

During the early spring these are fed warm syrup, given to them in an Alexander feeder at the rear of the lower hive. This stimulates brood-rearing to a great extent, and within a short time they begin to gain numbers. As soon as the weather begins to be somewhat settled after fruit bloom, the colonies are placed each on its own stand, side by side. If there is a pair, they are kept in pairs, and if there are three colonies the three, and four kept in fours, are kept close together.

After four or five days the colonies are examined and the weaker one placed on the old stand, thus giving it all of the field bees. Every four or five days the colonies are examined, and if one colony is weaker than the others the weakest one is placed on the old stand, thus giving it all of the old field bees. The entrances to each hive must be as small as possible.

Mr. Seastream says that this gives excellent results. The old field bees, being given to each colony alternately, supply the colony with plenty of fresh stores and pollen; this incites the queens to lay, and they gain very rapidly.

It might be supposed that there would be some fighting among the bees, also that some queens might be lost; but this is not the case. These colonies having been tiered up with queen-excluders between each of them, and then being placed side by side very close to each other, there is no difficulty, whatever, in making an exchange of the field bees in this manner.

The above manipulations require considerable attention, as Mr. Seastream has found that four or five days' interval is as much as should be allowed in making exchanges. The results, however, are wonderful, and the weakest colonies can be built up in time for a good honey crop. The plan has saved him hundreds of dollars' worth of bees ready to go to the field when the honey flow begins.—L. C. D.

APIARIAN EXHIBIT AT WASHINGTON STATE FAIR

By Geo. W. York

The Washington State Fair was held at Yakima, September 20 to 26, 1920. As usual, the exhibits in the Apiary Department were large and excellent. It is pretty hard to excel Mr. and Mrs. Robert Cissna and Mr. and Mrs. H. L. Hart when it comes to putting up an apiarian display for a fair.

Other exhibitors were J. C. Wallace and Fred Mandery, from near the coast, or "west of the mountains," as that locality is referred to; also Mrs. J. B. Cole and H. Christensen, from the Yakima Valley.

I wish I could do something or say something, that would induce more beekeepers to exhibit products of their apiaries at fairs. I know of no better way to acquaint thousands of people with honey and its uses,

and thus induce them to consume more of it. At the Spokane Interstate Fair, Mrs. Arthur Sires gave away hundreds of sample tastes of extracted honey on crackers, and thus helped to advertise honey in a very tangible way. But more of this should be done every year, and there is no better place than at the fairs, where people are always tired and hungry, and will not soon forget the taste of good honey. Of course, at the same time distribute leaflets with honey recipes and information about honey that will be of interest to everybody.

THE PURPLE MARTIN

By L. E. Webb

I note in the October Journal, under the editor's answers to questions, a question by "Kentucky" as to whether martins destroy bees.

Being a taxidermist and bird fancier and also a beekeeper, I have given the subject close attention for years, having many colonies of bees and large colonies of martins on the same lot.

The martins referred to by "Kentucky" are the "purple martins," which colonize in houses, do not destroy bees, although they feed exclusively on insects.

The name of "Bee Martin" has been applied erroneously to the purple or house martin.

A colony of chattering martins is one of the most beautiful and enjoyable things one can have and when a good house is secured (it must be the right kind, as martins are very particular, and will not build in a house unless it exactly suits their requirements), the colony increases, as year after year they return from their winter home in the tropics and spend the summer in the States.

About the 1st of April the colonies arrive and about July depart as suddenly as they came. Next to bees, the martin is the most interesting thing one can attract. They are strictly a social bird and require houses with a large number of

rooms, as they prefer to colonize in large numbers, and the most beautiful scenes imaginable are when hundreds of other martins visit the colony and the air is full of beautiful, graceful, chattering birds.

With a colony on your place you will have practical freedom from destructive insects.

The U. S. Department of Agriculture issues a bulletin on making martin houses and ready-made houses or plans can be secured from Jacobs Bird House Co., 404 South Washington St., Waynesburg, Pa.

Don't make the mistake of sticking up a box with rooms of just any dimensions, as the martins will not go about it unless it is properly arranged in every respect.

North Carolina.

TWO COLONIES IN ONE

By Wm. Bair

For intensive beekeeping, the plan I wish to describe seems to have possibilities. Having tried it only on a small scale, my impressions are favorable enough to work it more another season.

The only extra equipment needed is an inner cover bee-escape board with one of the end cleats taken off. I start the plan during the white clover flow by raising brood to the top story, providing there one, two or more full-depth extracting supers on the hive.

"Stagger" the top story to give the bees an entrance at the top. I seldom fail to get queen-cells by this plan, using a queen-excluder between brood-chamber and first super. Just before the virgin queens emerge, put your prepared escape board between the super containing the cells and the lower parts of the hive. There is now no connection between the two as the escape hole must be closed and the removed cleat furnishes them an entrance.

I always leave this entrance at the front, though it could be left at the side or back, which would decrease the danger of the virgin failing to find the right entrance on her return from mating trip.

Both queens are now to be left in their respective places during the season. Of course, if the old queen should swarm there would need to be some special manipulation of the lower colony. The young queen with her colony on top could be left, no matter what plan was used below.

In the fall, when all supers are taken off, simply leave the top colony on the lower with the board in between as before. The two will help keep each other warm during the winter.

Now for the next season. As early as they need the room, give each an extra hive-body, as shown in illustration.

When the honey flow has well started, put the hive-body containing the younger queen and her brood down on the bottom-board, the supers on top of this and the old queen



Bair's two colonies in one

and her brood entirely on top of all. Now kill the old queen and proceed to raise a young queen in same manner as previous season.

This throws the field force of both colonies without any interruption right in the same supers, and if there is any nectar to be had they ought to make some surplus honey.

Each stand of bees is annually requeened without the danger of having them entirely queenless. Should you fail to get a laying queen in the top colony you still have the lower queen on the job.

The removing of the top colony, for manipulating the lower, makes extra work, but a very few pounds more of honey pays for this, and more honey is what we work for anyway.

In the illustration the escape-board cleat is simply sawed in two and the pieces can be slid in or out, making the size entrance desired.

The picture was taken at beginning of clover flow before the change was made.

You will notice there are excluders between each brood-chamber and super; these could be left out, giving each queen the run of two bodies if needed.

Of course, this plan could be used only in the production of extracted honey. In place of letting each stand raise its own queen, a ripe cell, virgin or laying queen could be given just the same when the division is made.

Indiana.

ANOTHER WOMAN BEEKEEPER

During our visit in the northern part of the south peninsula of Michigan last summer, we paid a visit to a beekeeper's family which was very interesting, but which was not mentioned because we wanted to accompany the statement with a photo. Here it is, at last.

At Pellston, 17 miles from the northern extremity of the State, live the J. D. Robinson family. Mr. Robinson, being manager of the Levering Co-operative Market Association, has but little time to devote to his apiaries. So Mrs. Robinson, a young and attractive worker, does the work in

his stead, in spite of having a family to care for, and she acquits herself of it with speed and dexterity. She is shown in the accompanying cut, with a young lady helper, Miss Ruth Hillock, a school teacher, who earns something on the side between school terms, in this way. I accompanied the ladies to two apiaries. The bees were gathering honey freely and we removed just enough honey to give them space for a few days of harvest. It was a delightful experience to be there as a supernumerary, for I have always felt, in our own apiaries, as if nothing was done right unless I did it myself. That is probably why our own people have "laid me on the shelf." Mrs. Dadant and I spent a very pleasant day with the Robinsons, and we feel as well acquainted as if we had known them 20 years.

In the cuts they are shown, preparing the bees for winter.—C. P. D.

CLIMBING MILKWEED A PEST

In a recent number the climbing milkweed is recommended for honey. It may do to use it where it is already a pest, but anybody who plants it will regret it the rest of his life, as it is impossible to get rid of it when started. The floating seeds are bad about spreading it all over the neighborhood.

The sourwood is fine for honey and also an ornamental tree. The bloom resembles valley lillies. It only grows on sour sandstone soil. It will not thrive on good limestone soil. The buckthorn is just opposite. It may be near the sourwood, but never on the same soil. The many places that I have seen, it is always along the outcrop Kaskaskia limestone, never above or below it. The Chester sandstone or other coal measure sandstone will have plenty of sourwood.

C. F. Very, New Albany, Ind.

THOSE HONEY PLANTS FROM CHINA

Beekeepers wish to know more about the plants of which we have lately received seeds from China, and which were offered free for trial in the December number. Mr. Golding,

our correspondent in China, writes about them as follows:

"The broad bean is in flower from the third week in March to the beginning of May, and a lot of nectar is obtained from this source, but the surplus comes from rapeseed, which is abundantly grown in this neighborhood. Unfortunately, the flow from rapeseed is not of long duration, about three weeks altogether, from the middle of April to the first week in May. Rape yields an immense amount of nectar throughout the day, for bees work upon it from dawn to dark."

It should be remembered that our correspondent is located in a region similar to our Gulf States, so the season will be later in our Northern States.

Von Mueller, in his work on "Select Extra-Tropical Plants," states that the broad bean will bear seeds still in latitude 67 degrees. He mentions it as a source of nectar, as a table vegetable and as a particularly valuable fattening food for live stock. The seeds are large and contain about 30 per cent of starch. They are said to retain their vitality for six years or more.

He describes the rapeseed as valuable in a rotation of crops and states that an acre sown on sandy land in Victoria sustained twenty sheep during the fall and early winter and was available for other crops the following year.

It is the plants which are valuable for agricultural purposes as well as for nectar secretion which promise to be worthy the attention of the beekeeper. Such plants he can well endeavor to introduce into his neighborhood.

Our supply of seeds was almost immediately exhausted.

MARKETS AND PRICES ON HONEY

By Wesley Foster

The beekeepers of the western half of the United States have marketed but a small proportion of their extracted honey. The great bulk of them are very much dissatisfied with the present market situation. A large number of districts of the West had poor crops this year, and as a consequence the income of the producers has been very materially cut down by the short crop and the difficulty of marketing at a profitable price. However, the writer feels that a great many producers are complaining where they have little cause. The writer is interested in some 4,000 colonies of bees operated in Colorado, and the past season was a very unsatisfactory one, so far as crop conditions go, the average yield being something like 25 pounds of extracted honey per colony. On this basis, a price of 16 to 18 cents for the extracted honey, which was secured for the entire crop, as this honey was sold as soon as extracted, the return from the business was something like \$1 per colony less



Mrs. J. D. Robinson and Miss Ruth Hillock, at Pellston, Michigan, preparing the bees for winter in quadruple cases

than the cost of production. Half of these colonies were operated with hired help, high wages being paid. If the crop had been 60 pounds of extracted honey per colony an income of 20 per cent of the investment would have been secured, and the honey could have been sold at 12 cents per pound.

There were some districts in the Rocky Mountains where average crops of more than 120 pounds per colony were secured, and the beekeepers who have received between 100 and 200 pounds of extracted honey per colony, if their system of operation is economical, should very easily make good money and sell honey at 10 cents per pound, even under present high-priced supplies. The writer certainly would be glad to contract his entire crop at 10 cents per pound with present supply prices, if he could be assured of 100 pounds per colony or better.

However, it is not that the writer should like to see lower prices on honey, but it seems that lowering prices is the only way the beekeepers have at present for stimulating consumption. If the beekeepers would borrow 7 cents per pound on the crop in the warehouse and put the whole amount into advertising, and this be done on a national scale, so the entire crop of honey could be moved, they would doubtless receive as much for their honey as they will by waiting for the market to absorb it at a low price. The public will buy honey and will pay 30 to 60 cents per pound for it and will feel that they are getting good value, if we can only bring it to their attention. The case of peanut butter is one that I have referred to a number of times, and I believe it is a good comparison. As you know, peanut butter did not meet with public approval until but a few years ago, but now there are thousands of tons of peanut butter consumed in the United States and the consumption is growing daily. If we can work with honey along the same line, as I believe we shall, in another ten or twenty years honey will be a food on almost every table.

The outlook this winter and until the 1921 crop is off the hive, does not look any too encouraging, especially when looked at from the individual beekeeper's viewpoint; but if he could look over the country and see the cars moving steadily to market and see that this honey is actually being consumed, he would feel better. Honey is moving at a quite considerable rate of speed, and before the new crop is harvested most of the old honey will be consumed. There are a number of disturbing factors that should be noticed by the beekeepers, one of the principal ones being the importing of honey from foreign countries. This is coming in large quantities from South America, Cuba, the West Indies, Mexico, New Zealand and other countries.

Some legislation to protect the American honey industry is necessary, and I believe there will be in

the near future. One of the most unfortunate features in building up the honey industry is the lack of profit there is in it for the honey bottlers. The profit is so small that the honey packer and bottler cannot afford to spend the money in advertising, demonstrating and general publicity that should be spent. The reason that the publicity so far attempted has not been more profitable is that the hundreds and thousands of local beekeepers do not take into account the necessity for the packer making a profit, and sell honey at the same price that they expect to sell to the carlot buyer. The wholesale buyer or packer of honey has no protection whatever from the producer going right by him and selling to the parties he sells to and who spend no money pushing honey and who handle it only occasionally. They do not look ahead over ten or twenty years to see what the honey business can be made in that territory. What we want are not honey dealers, but trade builders, and we cannot get honey trade builders in any other way than by raising them up from among the beekeepers or in firms that are now very closely allied with beekeepers.

A great many of the beekeepers and writers in the bee journals are finding too much fault with the honey buyer, whether he be large or small, for the profit he is making. A point comes to mind: A peddler buys honey of the producer, we will say at 15 cents per pound, and goes from house to house retailing it at 25 cents per pound. The beekeeper would naturally suppose that this is too large a profit, but when the work necessary is taken into account and the fact that the honey peddler is doing a missionary work in encouraging the use of honey, his profit is not a bit too large. The writer has known of men who have made from \$20 to \$30 per day selling honey. The average for a whole year, of course, would be cut down very materially, and we beekeepers should not begrudge the high wages, even up to \$50 per day that a peddler would make selling our honey when our own time in the bee-yards is worth fully as much during the summer season. We are entirely too prone to deny the other fellow a chance to make a good thing at his business and we ought to be good sports and glad that from the honey dealer down to the peddler who sells our products, a good profit is made. I have heard beekeepers make the statement that honey dealers were robbers. I have also encountered a wholesale groceryman who accused the writer of paying the beekeeper too much for his honey, stating that it was not good for the beekeeper to receive such a high price. He had the idea that the producer should be paid as small an amount as possible, and seemed to think that the lowest price was all that the producer deserved. These ideas on the part of both the dealer and the producer are entirely

wrong, and I am glad to say that they are not encountered very often. The average dealer is glad to know of the prosperity of the beekeeper and in fact I have heard many of them speak in glowing terms of some of the producers whose honey they handle, and tell exultingly of the large checks they had paid these men for their product. This is certainly the proper spirit, and I would like to see more of this among the beekeepers of the country, although I have heard very few beekeepers show any appreciation if a honey bottler has had a prosperous year.

We must realize that American ideals stand for individual opportunity and a chance for everyone to obtain the reward for initiative and enterprise. We must not limit enterprise, for wherever this is done, our liberties are in danger.

There is one consolation in seeing the dealer make good profits, for they are, nine times out of ten, re-invested in the business, and it is enlarged for greater facilities for handling our products. Honey marketing in the United States would be better at the present time if twenty or thirty honey packers had been able to accumulate fortunes of \$100,000 to \$1,000,000, as this money would be re-invested in the business. It may be hard for some beekeepers to see this, but if this money is not forthcoming from the business men for investment in honey distribution the beekeepers will have to put up this money themselves.

November Bee Journal report, on page 395: In the first paragraph regarding crop selling the statement is made that all reports indicate that honey is moving very fast east of the Missouri River and north of the Ohio. The writer knows of a number of carloads in Chicago and Toledo, Ohio, that have been carried over from last season, and the sale of this honey has been exceedingly slow. Of two or three carloads in Chicago, less than one-half a car was sold during the past six months. The sale in the small country districts has doubtless been very satisfactory, but the demand in this territory for honey in bulk has been exceedingly slow and the market is not in a satisfactory condition.

Colorado.

LOOSE-HANGING OR HOFFMAN FRAMES, WHICH?

By C. P. Dadant

"I see in the 'Dadant System of Beekeeping' that you use loose-hanging frames. Since you practice more or less nomadic beekeeping, how do you manage to keep the combs in place? Also tell us what advantages there are to each kind, the loose-hanging and the Hoffman self-spacing frames." California.

Answer.—I will begin by saying that, by the advice of several people, the standard Modified Dadant hive is made with Hoffman self-spacing

frames. So we have both kinds, and I now propose to give the weak points and good points of each style, from my viewpoint.

First let me say that neither I nor any one else has any interest whatever in supporting the Dadant hive, outside of the idea of progress. Those who read of the Dadant hives being used as far away as Russia, Siberia, Argentine, Morocco, perhaps think that some Dadant agent has been selling hives in those countries, to the profit of the Dadants. Not by any means. Not a single Dadant hive has been sold or even offered in any country, outside of the United States, at any time, and the only hives which we have ever shipped across were those donated to the Franco-Belgian fund and half a dozen pattern hives sent in 1920, to Ancona, Italy. Other companies, who sell bee supplies all over the world, can testify to the truth of this. Their goods, and not Dadant's, except foundation, have been sold in far-away countries. The Dadant hive was never patented and has been adopted through the reading of the Langstroth-Dadant book, and in no other way.

Now to the loose-hanging frame question. In the sixties of the past century, the senior Dadant used Debeauvoys frames with self-spacing by having a wide $1\frac{1}{2}$ inch top-bar, with openings in it to permit the bees to go into the sections. Then we tried side-spacing and did not like it any better. Every one of those edges of side-spacing frames was whittled off by me at some time or other during my early experience, in order to get rid of the feature. The objections were as follows:

1. Whenever we opened a hive in which the frames were heavily coated with propolis, it was necessary to use a chisel to pry the frames apart.

2. When we pushed the frames back together, we always caught some bees between the joints.

3. As we did not then use comb-foundation (it was not yet invented), it was impossible to change frames around or exchange them from one hive to another; as the least projecting or bulging of a wavy comb would cause it to come in contact with the opposite one, and we could not, as with the loose-hanging frames, set them a little farther apart, in case of necessity.

4. In extracting honey out of self-spacing frames, the projection was in the way. It was still worse, if the projection was a nail instead of a wooden shoulder, for in that case the honey knife would jam more or less against it and be dulled.

5. If, through some accident or inadvertance, some frames were allowed to stay in the hive without being closely pressed against each other, the bees always filled those interstices with propolis. Huber, in his unedited letters, called attention to the great celerity with which, in time of honey shortage, the bees would fill every crack or crevice with propolis, both to protect their combs against enemies

and against the danger of their breaking down. Wherever propolis is plentiful, and it is plentiful in Hancock County, they fill with it all the spaces through which they cannot pass. Frames having propolis along their projection had to be scraped in order to make them fit in the hive.

6. Without the use of a movable division-board or dummy, it is next to impossible to remove the first frame from a hive in which the bees have been over a year, if the combs are propolized as we are accustomed to find them. While the loose-hanging frame, they may be readily moved, each a little, until there is room to remove one.

I am quite willing to admit that, with the present comfortable use of comb-foundation, which secures very straight combs, some of the above disadvantages are eliminated. There are also some advantages to the Hoffman self-spacing frames which cannot be denied. They are as follows:

1. The frames are held in place, so that they may not move sideways. When the hive is new and the combs not yet glued, this feature enables us to transport the bees easily without any other fastening. When moving loose-hanging-frame hives, it is sometimes necessary to fasten the frames with a rack at the top. We have never found it necessary in our nomadic beekeeping, moving bees on trucks a distance of 20 to 30 miles. The propolis holds them sufficiently.

2. It is possible to handle colonies with greater speed, because you may handle 3, 4 or even 5 frames fastened together by propolis as quickly as you handle one. When I visited the Wilder apiaries in the hands of W. B. Bradley, in southern Georgia, in 1918, I admired the speed with which he handled half a dozen combs to reach the cluster in the center of the hive. With the loose-hanging frame, we have to use a different method and "spread the frames" to get to the center one.

3. If you employ "green help" there is no danger of their making mistakes and putting 9 or 11 frames in a hive that should contain 10. That is why the Modified Dadant hive has been made with Hoffman self-spacing frames. And, by the way, let me say that Mr. Julius Hoffman, who invented them, was a very practical man and had great regard for Charles Dadant. I have before my eyes a postal card from him to Charles Dadant dated January 11, 1879, in which the following words occur:

"I take the liberty of assuring you of my highest esteem, as I think you have done as much or more than any other man to benefit the bee business in this country."

HONEY CHANGING QUALITY

In the November number, page 376, inquiry is made about honey turning to syrup in tin pails. Around here it is universally said that if a tin pail is washed out with soapy water, the next contents will spoil, even if the pail is rinsed afterwards. I don't

know just why this is, but it is confirmed by people of experience, and also that the pails should not be used for syrup or honey more than twice. I have heard of people selling honey in pails who would allow for the return of the pail, provided it was returned unwashed. Perhaps the thing can be solved by noting the chemical action of soap on tin.

Tym C. Reynolds.

THE CAUSE OF ISLE-OF-WIGHT BEE DISEASE

Important Results by Investigators at Aberdeen

For some years past an investigation has been conducted by Dr. John Rennie and his collaborators, Miss Harvey and Mr. Bruce White, under a special Joint Committee of the University and the College of Agriculture at Aberdeen, on the cause of Isle-of-Wight bee disease. The funds necessary to finance the investigation have been provided equally by A. H. E. Wood, of Glassel, Aberdeenshire, and the Development Commissioners. At a meeting of the Royal Society of Edinburgh held on the 1st of November, a series of papers illustrated by micro-photograph lantern slides was read describing the work of the investigation, and making the important announcement that an organism had been discovered which the investigators considered had been proved to be the causal agent in this disease. The authors stated that this disease had been known in bees in this country since 1904, at least, and it was still highly prevalent throughout the United Kingdom. Since 1907 investigations have been going on in England, and for a shorter period in Scotland. Eight years ago certain English workers claimed that the causal organism was protozoan, named *Nosema apis*. It was due to Mr. J. Anderson, of Aberdeen, to state that he was the first to call in question this hypothesis, and more recent work from the Parasitology Laboratory at Aberdeen, under the joint committee above referred to had shown *Nosema apis* to be a harmful parasite to bees, but not causally related to "Isle-of-Wight" disease. This disease had, up till now, remained an unsolved problem. At the meeting of the Royal Society of Edinburgh, the papers read by the Aberdeen Bee Research staff revealed the existence of a hitherto unknown type of parasitism in bees of a remarkable kind. In Isle-of-Wight disease the respiratory system of the bee was invaded by an extremely small mite. It belonged to a genus known as *Tarsonemus*. This creature, which was specialized in structure, was bred within the bee and was confined to an extremely limited but very important region of its breathing system. Within a space of a few cubic millimetres, scores of these creatures might be found in all stages of development, sometimes

packed in dense columns so as effectively to cut off the air supply from the surrounding organs. The detailed pathology described in Mr. White's paper proved the destructive character of the parasite's habits. Thousands of bees had been examined from large numbers of stocks throughout the country and it had been found that every stock reported by reliable beekeepers or certified by the investigators themselves as suffering from the disease, harbored this parasite. Similarly, every individual bee, known from its stock history and individual symptoms to be suffering from this disease, was likewise found to contain these parasites and to exhibit the internal disorders which caused the disabling symptoms. The investigators stated that they were now able to diagnose the disease in its earliest stages, while the bees were capable of flying and foraging. Infection appeared to occur mainly in the hive, the conditions of the cluster making this comparatively easy. Mites had been obtained from the outside of the bee, apparently on their migratory passage. The tarsonemes included several species destructive to plants and there were some which have been found in malignant growths in man and in animals. The bee tarsoneme, in its structure, appeared to be more closely allied to these last.

Many bees from different countries outside Great Britain had been examined, and so far *Tarsonemus* had not been found in these. All the evidence hitherto obtained points to the parasite in bees being peculiar to this country. This coincides with the general testimony regarding the insular character of "Isle-of-Wight" disease. The name of Isle-of-Wight disease had long been regarded as unsatisfactory, and it appeared that "Acarine" disease would be more appropriate.

In view of the great practical interest shown by Mr. Wood, of Glassel, in the work of the research and of beekeeping generally, the director of the research proposed to designate the new species "*Tarsonemus woodi*." The investigators recorded their very high appreciation of the support of beekeepers throughout the country in supplying bees, and for other assistance so essential for the successful conduct of the research.

FROM THE FIRST ISSUE OF THE AMERICAN BEE JOURNAL, JAN- UARY, 1861.

A Bee Master

He may be regarded as a master in bee culture, who knows how to winter his stocks in a healthy condition, with least loss of bees, the smallest consumption of stores, and with the combs unsoiled.

Money From Bees

There are three German adages which run thus:

1

Bees, sheep and angle-rod, be sure,
Will make thee quickly rich or poor!

2

Sheep, doves and bees (nought surer),
Will make thee neither richer nor poorer.

3

Keep plenty of bees and sheep
Then cosily lie down and sleep!

In the Kingdom of Bavaria, over 200,000 hives of bees are kept, according to the official returns made to the Government; and these, it is stated, yield an average profit of 75 per cent on the investment. In view of this result, a late German writer thinks there is rather more of truth in the last of these adages than in the first two.

A Cure For Robbing

When robbing bees attack a weak colony having a fertile queen, it is advisable to remove it from its stand to a dark chamber or cellar. Set an empty hive in its place, strew therein a handful or two of the stems and leaves of wormwood, and rub the front of the hive and bottom-board therewith. The assailants will soon forsake the spot, and the colony may

be replaced on its stand on the evening of the following day.

January

Not unfrequently the queen begins to lay eggs already in January, though this is by no means a desirable occurrence, resulting commonly in detriment to the colony and damage to its owner.

Besides a sufficiency of stores, adequate warmth is indispensable for the wintering of bees.

If a warm day tempts the bees to fly when the ground is covered with snow, a quantity of loose straw should be scattered on it in front of the hives to keep the bees from being blinded by the glare, and aid them in returning to their homes.

An Aid to Prosperity

An extensive traveler, Mr. Keppelhoff, remarks: "On close observation everywhere among the peasantry of the countries I have visited, I uniformly found that small cottagers who kept bees, were in the enjoyment of a greater amount of the comforts and conveniences of domestic life than those who paid no attention to the industrious insect."

BEEKEEPERS BY THE WAY

A Beekeeping Entomologist

Professor H. F. Wilson was an entomologist a long time before he became a beekeeper. If he had been a beekeeper first, the chances are that he never would have been an entomologist, for since he took the bee fever the bugs have suffered from neglect. It is not clear as to just when Wilson first became interested in bees. Several years ago, while stationed at the Oregon Agricultural College, he issued a bulletin on elementary beekeeping.

When he became head of the Department of Entomology at the Wisconsin University his beekeeping propensity first found opportunity for unlimited development. Beekeeping is an important industry in Wisconsin and the Department of Entomology is an equally important branch of the University. There are some live beemen in Wisconsin, and when a live bunch of beekeepers find their university ready to co-operate with them, things begin to happen. Things have been happening in Wisconsin for some time past. For two years they have held a beekeepers' chauteauqua at the side of a lake in Madison, after the close of the main honey flow in August. The beekeepers have camped out and cooked their meals from the university garden, which Wilson took care to have planted for them. There have been big crowds and good times and hard study as well.

Wisconsin has one of the most complete organizations of beekeepers of any of the States. In addition to a

strong central organization, most of the counties where beekeeping is important have branch associations which are wide awake. Wilson is Secretary of the State organization. The university, in co-operation with these local organizations, has held three-days bee schools in all parts of Wisconsin. Keep your eye on the Badger State.



H. F. Wilson, of Wisconsin

THE HONEY-MAKING WASPS

By Frank C. Pellett

In the July number was an account of the shipment of a colony of honey-making wasps from Rio Hondo, Tex., to Hamilton, by C. S. Engle. A picture of the big nest inside the cage in which it came was shown at that time. The insects were a source of great curiosity to the people of Hamilton upon their arrival, and caused many interesting comments.

The cage was opened and the nest hung beside the dining-room window, where the activities of the insects could be readily observed. For a time they worked away with apparent content. I was beginning to congratulate myself upon my unusual opportunity of watching the insects at close range, when they suddenly swarmed out and deserted the nest. No one saw them go and we could find no trace of them. When heavy frosts came in October and brought down the leaves a new nest was found in a small black locust tree only about a block distant from the site of their old nest by the window. The new nest had been made in a small tree, one of a thick clump. As the nest grew in size the weight became too much for the little tree, and it bent down until the nest rested upon the ground. It was nearly as large as the original, and was occupied by a very numerous population of insects much resembling our native yellow jackets.

Since these insects are native to a tropical country and can stand very little frost, the nest was removed to the cellar, where it is hoped that they will pass the winter safely. There was no way to open the nest to ascertain

whether or not they have a sufficient supply of honey to carry them through. It is extremely doubtful whether insects of this kind, native to a tropical country, where they have opportunity to gather nectar every month in the year, will survive the long months of confinement in an Illinois cellar.

Although there were only a few weeks of time when the nest and its occupants were under observation, a number of interesting facts were observed. When the foragers returned from the field with a load of nectar, they would pass from one worker to another on the outside of the nest and divide the spoil. The drop of nectar could be very plainly seen as it was offered, and each recipient took but little. From three to a dozen individuals would take a portion before the forager would disappear within the nest.

Peculiarities of the Insects

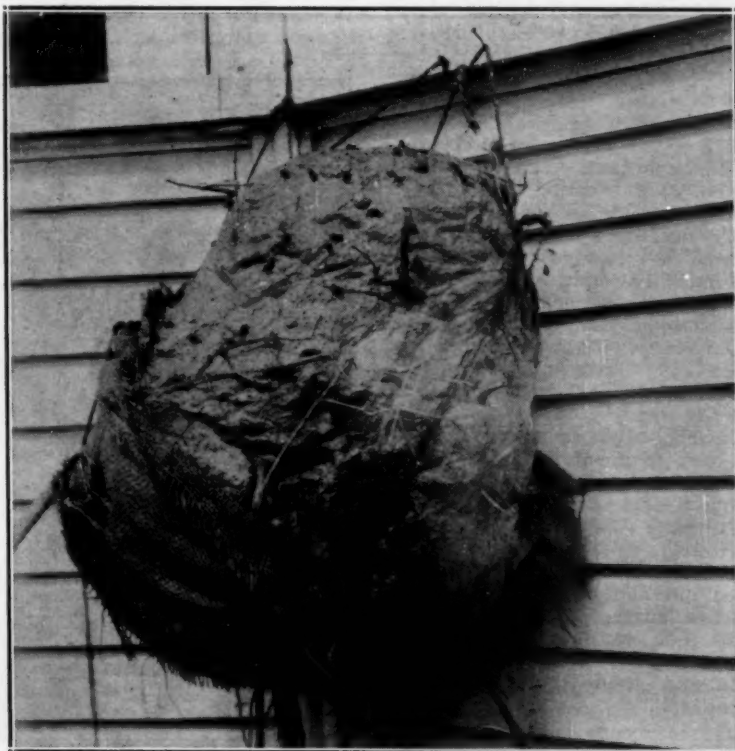
The nectarina seem to form a link connecting the bees with the wasps. They have a number of characteristics which apply to bees, and others that are distinctly wasplike. Their nests are made of paper like the wasps and greatly resemble those made by the yellow jackets and bald-faced hornets. These native wasps, however, feed their young on animal food, while the nectarina store honey in the cells as do the honeybees. I did not observe them bringing in any pollen, and apparently the only pollen brought in is such as is contained in the drops of nectar. There are several species of these honey-making wasps common from Mexico south to Brazil. I can find no record

of their occurrence within the United States, but from my correspondence with beekeepers and my visits to that region, I know them to be quite common in the extreme lower region of the Rio Grande Valley. As nearly as I can ascertain, they only occur a few miles north of Brownsville, and nowhere else within the limits of our country. I have never found any of our native wasps which lose their stings as do the honeybees. When the nectarina sting, they lose their stings in the same manner. I was much astonished at this the first time one stung me, and I deliberately repeated the experience several times to make sure that it was the normal thing for them to do.

Although they store a considerable amount of honey in their paper combs, they do not cap it over as do the honeybees. Another resemblance to the honeybee is the fact that they are reported to swarm in much the same manner. I found this colony to be quite gentle and to show very little resentment when I examined the nest. When one does sting, it is very painful.

Failing to find anything concerning these insects in any of the publications on natural history in this country, I appealed to friends in Washington to see whether anything was available elsewhere. Through the kindness of Doctor Phillips, I have secured a translation of an account of a French naturalist which was published by the Entomological Society of France many years ago. He described several species and devoted considerable attention to *Nectarina lecheguana*, the species under consideration. He stated that about one-sixth of the population of a nest sent him from Brazil consisted of large females having in the oviduct eggs ready to be laid. I have not been able, as yet, to distinguish any of the insects as queens. Du Buyssen, the naturalist quoted, is of the opinion that larvae are fed on delicate insect larvae in addition to the nectar. If he is correct, we find here the food habit resembling both bees and wasps. In the regions where the nectarina are common they are said to be smoked out of their homes in December and left to start anew while the nest and honey are taken away. I learned from the beekeepers about Brownsville that the nests are much sought for by the Mexicans who live in the vicinity, and we read that they are often sold in Mexico for the honey which they contain. There are cases recorded where the cowboys have become intoxicated from eating honey from these nests, which was gathered from daturas.

These insects are principally an object of curiosity to us and could hardly become of commercial interest. Pictures showing the original nest in which they were received and also the new nest which they afterwards built are shown. Should they survive the winter, perhaps other facts of interest may later be discovered.



Nest of honey-making wasps hung beside the window

THE HONEYBEE IN RUSSIA

(Concluded)

Let us now see what resources Russia offers to the bees. This immense country, whose climate varies gradually from cold to hot regions, comprises in its vast extent enough irregularities to produce a great diversity of different plants.

The flora may be divided into zones, that of the low plains temporarily overflowed; that of the marshes, half forest and half prairies; that of the high plains upon which water never stands, and lastly that of forests proper, which cover immense territories and which, according to local conditions, have a varied and special flora. There is also the separate flora of cultivated fields, parks and gardens.

Traveling from one place to another, one finds first, near the water, the numerous willows already mentioned, which, besides furnishing the first pollen, also close the season sometimes with a heavy honeydew so abundant that it fairly runs from the leaves. This honeydew is not to be found everywhere, but only on those willows bordering a stream that dries up during the hot weather. This honeydew is also produced on the leaves of basswood, which thus, also, gives two crops.

In the marshy lands, we find the magnificent angelica (*Archangelica officinalis*). On its large umbels with numerous flowers, we see the big golden "cetonia" looking for all the world like a brooch on a cambric collar. Near it, the large butterfly, *Parnassus apollo*, whose white wings bear a red "eye" and appear to be on guard. Between them, the honeybee alights and rapidly gathers the honey.

But as the prairie becomes drier, the bees find pleasure in gathering honey from valerian, epilobium and scabious. Soon after, they will find the vipers' bugloss (*Echium vulgare*), whose high-plumed tops draw them. Then comes the sage (*Salvia pratensis*), whose honey is of an odor recognized at some distance. The steppes of the southern regions have several varieties of labiates, growing in virgin soils and making up for the lack of forest bloom. Basswood is one of the boons of Russia and, with the birch, serves many purposes in the life of the peasants. Before the advent of tea, the blossom of basswood was used in a similar way. In many places it is still used as tea, and during the past few years many people have come back to its use, since the tea of China has not been available, under the rule of Lenine. Moreover, this blossom also furnishes the sweetening, through its honey. Metheglin, which took the place of alcoholic drinks, was usually prepared by the head of the family and was served in special vessels, made of sculptured wood. Basswood, which is easily worked, is used in the manufacture of much of the woodenware—spoons, spatulas, dishes, tubs,

furniture, as well as to make kegs, from trunks hollowed out, in which honey keeps very well. When honey is sold it is always weighed with its container, which, being of basswood, is very light. After being emptied, these little kegs are very useful in the household. Basswood is also used in the manufacture of "laptis" or sandals, made of basswood bark, braided, and worn by most peasants. In these later times, since leather has attained unapproachable prices, it was not unusual to see city people wearing "laptis," while the bolchevik masters were still wearing leather shoes.

From the bast, or bass, inner bark of the basswood, they manufacture ropes, rugs, sacks, mats and mattresses, and even backs for the seats of sleighs, etc. It seems as if life could not be possible, in certain parts of Russia, without those two trees—basswood and birch. The latter is used to build houses, to make wagons, tools, plows, etc. It is the brother of the basswood and one of the gifts of Nature to facilitate man's existence.

Among the honey plants, we must also notice the white sweet clover, the odor of the bloom of which perfumes the air at the beginning of a sunny day. We find it everywhere, and it is easily seen, around the houses, the fields, in the pastures and the forest. The bees love those leguminous plants, and the housekeepers themselves gather bunches of them, when in bloom, dry them

and put them in the clothes-press to give a sweet smell to the linen.

Among the cultivated plants, I have already mentioned rape and buckwheat. The latter furnishes not only the meal of which they manufacture "blennies," or pancakes, at the end of Lent and during the Carnival, but also a breakfast food, mixed with millet in the preparation of the "Cacha," which is found daily in every household, even in the cities, for the food of the children and of the servants. How many people return to the country dishes of their young days! I have seen rich, wealthy, society ladies, but especially children, after dining at a richly-served table, turn clandestinely to the kitchen cupboard to tip out a wooden spoonful from the dish of "Cacha."

In all the landed estates, there are always large flower and vegetable gardens, orchards, etc. About these, one often sees a number of avenues of cytisus, an ornamental free-flowing shrub, whose yellow blossoms are much esteemed by the bees. As they are very plentiful, they form an appreciable resource for the apiary.

As the Russians are very fond of sweets, it is necessary for the housekeepers to secure the numerous small fruits of which preserves are made, such as currants, raspberries and strawberries. The raspberry flowers are considered as very good honey producers and I have seen large fields of them intended especially for



New nest which the wasps made after deserting the old one in which they were shipped from Texas

the good of the apiary, but also useful in their fruits.

The fruit trees also give honey, but their bloom is of very short duration. We see that Nature has marked a role for the bees in the fertilization of plants, and they are drawn to them at the proper time by the odor of their nectar glands.

It is to be regretted that the apiaries, which suffered a great deal at first by the seizure of the domains by the peasants, should have again suffered when the bolchevik soldiers, during the civil war, in their turn, also pillaged the hives, not in the way of beekeeping, but in the way of thieves and robbers, thus destroying many apiaries which constituted a part of the wealth of the country. I trust that our own country may be preserved from such a calamity.

Ph. JEANNERET.

(Bulletin de la Societe Romande, Switzerland).

A CAPABLE BEEKEEPER

By T. C. Johnson

While inspecting bees I have met many fine beekeepers, and I always find good beekeepers fine people to deal with, let them be either men or women. It seems to depend a great deal more on the beekeeper than the locality whether the business is successful. I wish to mention F. W. Luebeck, of Knox, Stark County, Indiana, whom I had the pleasure of meeting for the first time three years ago. I feel sure that Mr. Luebeck is a wonder. He gets more honey with less work than any other man in Indiana. Mr. Luebeck came from Germany in his young days, lived in Chicago 20 years and then went to Canada. From there he went to Alaska, crossing Alaska in a self-built boat. He traveled by boat in summer and dog team in winter. He returned to Chicago in 1902, but city life did not appeal to him, so in 1902 he came to Stark County, Indiana, and settled on a small, sandy farm about 7 miles northeast of Knox, and started beekeeping with 9 colonies the first year. The following winter he built 50 hives and bought all the bees he could find from farmers, in all sorts of hives. At present he has 300. He has a Ford 1-ton truck and moves his bees, or a part of them, 29 miles twice a year, so as to get two crops of honey, and he sure gets it. He uses the standard 10-frame body with shallow extracting super on top, and runs entirely for extracted honey. As strange as it may seem to good beekeepers, he never takes out any frames to look through any colony unless he sees they are not up to standard. He claims he has colonies that he has not had a frame out of in 3 years. It is not everybody that can get by like that, but he has all movable frames and a very fine outfit. He is a real mechanic, having made his own 8-frame extractor, and all his honey tanks. One holds 3,500 pounds and

he purchases honey enough to fill it several times every season. He has a fine home that he has built himself and finished inside. He has made all this from his bees, his only business. In all my travels in Indiana I have never seen supers piled so high, or all colonies so full of bees and honey from top to bottom. I could not look in the top without something to climb up on. He has a crop of 45,000 pounds or better this year from 300 colonies, while some of his neighbors got scarcely anything.

Indiana.

DIRECTORY OF BEEKEEPING OFFICIALS

An attempt has been made to secure the names of all those engaged in teaching, inspection or extension work in beekeeping, and also secretaries of beekeepers' associations. Every State Department of Agriculture and College of Agriculture has been asked to supply the names of those connected with its staff. Since it has been found to be impossible to get the names of all the secretaries of county and local beekeepers' associations, these are not included. This list was compiled in November, and several changes have taken place since that time.

U. S. DEPARTMENT OF AGRICULTURE—

Bureau of Entomology, office of Bee Culture.

Dr. E. F. Phillips, Apiculturist in charge.

Mr. George S. Demuth, Apicultural Assistant.

Mr. Lloyd R. Watson, Assistant Apiculturist.

Mr. Arnold P. Sturtevant, Specialist in Bacteriology of Bee Diseases.

Mr. G. H. Cale, Apiculturist in Extension Work.

BACTERIOLOGY—

Dr. G. F. White, Investigations in Bee Diseases.

NATIONAL—

H. B. Parks, San Antonio, Acting Secretary American Honey Producers' League.

ALABAMA—

Dr. F. L. Thomas, Auburn, Specialist in Entomology, Extension Lecturer.

ARIZONA—

Charles H. Vorhies, Tucson, Entomologist, in charge of teaching and experimental work in beekeeping.

Earl F. Matteson, St. David, State Apiary Inspector.

Geo. M. Frizzell, Tempe, Secretary State Beekeepers' Association.

Don C. Mote, State Entomologist, investigations in bee diseases.

ARKANSAS—

W. J. Baerg, Fayetteville, Entomologist, in charge. Secretary State Beekeepers' Association.

CALIFORNIA—

Prof. G. A. Coleman, Berkeley, Apiculturist in charge.

Ralph Benton, Berkeley, Instructor

in charge of correspondence course in beekeeping.

A. B. Shaffner, Los Angeles, Secretary State Beekeepers' Association.

C. E. Millspaugh, Los Angeles, General Manager Honey Producers' Cooperative Exchange.

A. B. Shaffner, Los Angeles, Secretary Consolidated Honey Producers' of California, Incorporated.

Miss E. A. Barr, Los Angeles, Secretary Southern California Beekeepers' Association.

Official List of County Inspectors

Alameda—Cary W. Hartman, Oakland.

Butte—J. W. Meakins, Chico.

Contra Costa—Geo. W. Moore, Antioch.

Fresno—C. R. Snyder, Selma.

Glenn—M. A. Saylor, Orland.

Imperial—A. Logan, Calipatria.

Inyo—E. E. Burdick, Big Pine.

Kern—H. L. Weems, Bakersfield.

Kings—P. H. Bales, Hanford.

Lassen—O. C. Miller, Standish.

Los Angeles—Geo. D. De Sellem, 121 Temple St., Los Angeles.

Merced—W. W. Thompson, Dos Palos.

Monterey—A. Norton, Pacific Grove, 518, Fountain Ave.

Napa—W. D. Butler, Napa.

Orange—J. E. Pleasants, Orange.

Riverside—T. O. Andrews, Corona.

Sacramento—B. B. Hogaboom, Elk Grove.

San Bernardino—B. H. Stanley, Rialto.

San Diego—Fred Hanson, San Diego, 4430 New Jersey St.

San Joaquin—C. H. L. Souder, Linden.

Santa Cruz—Phil J. Strubel, Felton.

Shasta—E. S. Bartell, Anderson.

Siskiyou—Roy D. Tait, Hornbrook.

Stanislaus—Willis Lynch, Salida.

Tehama—J. P. Summers, Los Molinos.

Tulare—S. J. Miller, Tulare.

Tuolumne—H. H. Sherrard, Sonora.

Ventura—Newton Cale, Ojai.

COLORADO—

C. P. Gillette, Ft. Collins, State Entomologist in charge.

Wesley Foster, Boulder, Deputy Bee Inspector.

County Inspectors—

W. C. Evans, Ft. Collins, Larimer County.

S. A. Mendum, Boulder, Boulder County.

Walter Martin, Brighton, Adams County.

N. L. Henthorne, Platteville, Weld County.

George R. Gilmore, Ft. Morgan, Morgan County.

Chas. Hollingshead, Sterling, Logan County.

W. H. Birney, Las Animas, Bent County.

George McMannan, Carlton, Prowers County.

Harry Ingalls, Ordway, Crowley County.

A. S. Parsons, Rocky Ford, Otero County.

E. D. Smith, Durango, La Plata County.

W. H. Kendle, Montrose, Montrose County.

J. G. Jewell, Delta, Delta County.
Wm. Harkleroad, DeBeque, Mesa County.

Frank Nieubauer, New Castle, Garfield County.

W. L. Cooper, Pueblo, Pueblo County.

Associations—

Frank Rauchfuss, Denver, General Manager Colorado Honey Producers' Association.

Wesley Foster, Boulder, Secretary State Beekeepers' Association.

CONNECTICUT—

L. B. Crandall, Storrs, Teaching and Extension.

Inspectors—

A. W. Yates, Hartford.
H. W. Coley, Westport.

Associations—

Louis St. Clair Burr, South Manchester, Secretary State Beekeepers' Association.

DELAWARE—

No regular work. Wesley Webb, Dover, Secretary State Board of Agriculture, provides an occasional lecturer at farmers' institutes, and some inspection.

FLORIDA—

Wilmon Newell, Plant Commissioner, Gainesville, in charge of bee disease eradication.

C. A. Reece, Gainesville, Assistant University—

Wilmon Newell, Gainesville, Beekeeping Specialist, extension.

Frank Stirling, Gainesville, Instructor.

Associations—

K. E. Bragdon, Cocoa, Secretary State Beekeepers' Association.

H. E. Rish, Wewahatchka, Secretary Tupelo Honey Exchange.

GEORGIA—

T. H. McHatton, Horticulturist, Athens, answers correspondence relating to beekeeping. Extension work temporarily suspended, at the College of Agriculture.

A. C. Lewis, State Entomologist, Atlanta, in charge apiary inspection.

Mrs. Madge B. Merritt, Brunswick, Secretary State Beekeepers' Association.

IDAHO—

W. H. Wicks, Boise, Director Bureau of Plant Industry, State Bee Inspector in charge.

Inspectors—

I. F. Carter, Sandpoint.
C. E. Frederich, Kuna.
W. A. Griggs, Nampa.
J. C. Gunderson, Route 3, Rigby.
A. A. Hansen, Lewiston.
Chas. H. Harper, Filer.
James S. Hite, Weiser.
W. G. Moore, Mountain Home.
C. M. Park, Emmett.
D. C. Stahlman, Buhl.
J. W. Stewart, Rupert.
C. H. Stinson, Twin Falls.
James P. Tye, Mountain Home.
Charles E. Sheldon, Couer d'Alene.

Associations—

Mr. P. S. Farrell, Caldwell, Secretary Idaho-Oregon Honey Producers' Association.

ILLINOIS—

Prof. J. W. Folsom, Urbana, Instructor in State University.

Associations—

G. M. Withrow, Mechanicsburg, Secretary State Beekeeper's Association.

John C. Bull, Valparaiso, Ind., Secretary Chicago Northwestern Beekeepers' Association.

Inspectors—

A. L. Kildow, Putnam, Chief Inspector.

Deputies—

C. F. Bender, Newman.
C. W. Finch, 1451 Ogden Ave., Chicago.
A. L. Logan, Edwardsville.
H. L. King, Route 5, Springfield.
C. H. Wiley, Route 1, Harrisburg.

INDIANA—

John J. Davis, Entomologist Purdue University, Lafayette, in charge.

Professor Price, Instruction.

James Troop, teaches beekeeping incidentally with entomology.

Associations—

Ross B. Scott, LaGrange, Secretary State Beekeepers' Association.

Inspectors—

Frank N. Wallace, State Entomologist, Indianapolis, in charge.

Deputies—

T. C. Johnson, Logansport.
James E. Starkey, Bunker Hill.
C. O. Yost, Indianapolis.

IOWA—

F. B. Paddock, State Apiarist, Ames.

Wallace Park, Ames, Investigations in Apiculture.

Newman S. Lyle, Ames, Extension.

F. B. Paddock, Ames, Secretary State Beekeepers' Association.

KANSAS—

J. H. Merrill, State Apiarist, Manhattan.

Inspectors—

A. V. Small, Augusta.
J. A. Nininger, Hutchinson.
Rev. E. V. Gardner, Eureka.
A. W. Jones, Wichita.
O. J. Jones, Wichita.
Frank Van Haltern, Wathena.
L. P. Whitehead, Wathena.
George Pratt, Topeka.

Associations—

O. F. Whitney, Topeka, Secretary State Beekeepers' Association.

J. H. Merrill, Manhattan, Secretary Kansas Honey Producers' League.

Mrs. M. F. Latshaw, Manhattan, Secretary Northwest Kansas Beekeepers' Association.

A. W. Jones, Wichita, Secretary Southwest Kansas Beekeepers' Association.

R. H. Clark, North Topeka, Secretary Eastern Kansas Beekeepers' Association.

KENTUCKY—

Prof. H. Garman, Entomologist, Lexington, in charge.

H. H. Jewett, Lexington, teaches a

course in beekeeping at the University.

H. R. Niswonger, Specialist in Horticulture, Lexington, extension lectures in horticulture, and occasionally in beekeeping.

Association—

H. Garman, Lexington, Secretary State Beekeepers' Association.

LOUISIANA—

E. C. Davis, University Station, Baton Rouge, Bee Specialist in State University.

E. C. Davis, Baton Rouge, Secretary State Beekeepers' Association.

MARYLAND—

Ernest N. Cory, State Entomologist, College Park, Inspector of Apiaries.

Ernest N. Cory, College Park, Secretary State Beekeepers' Association.

MASSACHUSETTS—

No work in beekeeping at College of Agriculture.

Inspectors—

Leland Taylor, Assistant Director Plant Pest Control, Boston, in charge.

Burton N. Gates, Worcester.

O. F. Fuller, Blackstone.

Ivan Rawson, Pittsfield.

Edward Thorne, Worcester.

MICHIGAN—

B. F. Kindig, East Lansing, in charge of Apiculture at the college.

Russell H. Kelty, East Lansing, Instructor in Beekeeping.

Edwin Ewell, Ypsilanti, Extension Specialist in Beekeeping.

Inspectors—

B. F. Kindig, East Lansing, State Inspector of Apiaries.

P. T. Ulman, East Lansing, Chief Deputy Apiary Inspector.

Russell H. Kelty, East Lansing, Deputy Apiary Inspector.

County Inspectors—

L. C. Retan, Jasper.
O. M. Wallace, Burton.
C. C. Chamberlain, Romeo.
F. G. Layer, Unionville.
F. E. Jones, Mendon.
D. B. Goodspeed, Marcellus.
A. E. Sharrow, Plymouth.
O. Jones, Stockbridge.
Earl Townsend, Flint.
A. B. Ruggee, Traverse City.
C. D. Townsend, St. Johns.
C. Newhouse, Grand Rapids.
A. F. Mead, Battle Creek.
Floyd Markham, Ypsilanti.

Association—

Russell H. Kelty, East Lansing, Secretary State Beekeepers' Association.

There are also 33 local associations in the State of Michigan.

MINNESOTA—

Francis Jager, University Farm, apiculturist in charge.

G. C. Matthews, University Farm, Assistant Apiculturist.

L. V. France, University Farm, Investigations.

Inspector—

Charles D. Blaker, State Apiarist, Minneapolis.

Association—

Otto L. Wille, Minneapolis, Sec-

retary State Beekeepers' Association.

MISSISSIPPI—

R. B. Willson, Extension Specialist in Beekeeping, Agricultural College.

MISSOURI—

Leonard Haseman, State Entomologist, Columbia. Teaches course in beekeeping.

MONTANA—

R. A. Cooley, State Entomologist, Bozeman. Both teaching and extension work in beekeeping.

Frank E. Clift, Huntley, Secretary State Beekeepers' Association.

NEBRASKA—

Myron H. Swenk, Entomologist, Lincoln, teaching and extension.

O. E. Timm, Bennington, Secretary Nebraska Honey Producers' Association.

NEVADA—

George G. Schwis, Reno, State Bee Inspector.

Deputies—

G. A. Norton, Fallon.
Chas. Johnston, Yerington.
R. M. Guthrie, Reno.
J. I. Earl, Overton.

NEW HAMPSHIRE—

W. C. O'Kane, Entomologist, College of Agriculture, Durham.

J. R. Hepler, Durham, in charge College Apiary.

H. B. Stevens, Durham, Secretary State Beekeepers' Association.

NEW JERSEY—

E. G. Carr, New Egypt, Extension Specialist in Beekeeping, also teaches course at the College of Agriculture.

E. G. Carr, New Egypt, Secretary State Beekeepers' Association.

NEW MEXICO—

No work at college; no State organization.

NEW YORK—

George H. Rea, Ithaca, Extension Specialist in Apiculture.

Associations—

H. E. Gray, Ft. Edward, Secretary Adirondack Beekeepers' Association.
Stephen Davenport, Indian Falls, Secretary Eastern New York Beekeepers' Association.

J. H. Cunningham, Syracuse, Secretary State Beekeepers' Association.

J. Roy Lincoln, Niagara Falls, Secretary Western New York Honey Producers' Association.

There are also 29 county associations in New York.

Inspectors, permanent—

Charles Stewart, Johnstown.
W. D. Wright, Altamont.
Summer 1920—L. E. Hall, Tribes Hill.

S. D. House, Camillus.
A. W. Smith, Parksville.
O. L. Hershiser, Kenmore.
D. R. Hardy, Watertown.
H. E. Gray, Ft. Edward.
J. H. Sprout, Lockport.
D. L. Woodward, Clarksville.
L. M. Yandoh, Fulton.
T. I. Dugdale, West Galway.
John Dunbar, Phoenix.
R. H. Quick, Nichols.
Lemar Coggs, Groton.
W. D. Browning, Johnson City.
Schools of Agriculture—

George C. Norton, State School of Applied Agriculture on Long Island, Farmingdale, Instructor in Beekeeping.

E. Hodder, Schoharie School of Agriculture, Cobleskill, Instructor in Beekeeping.

T. H. Townsend, School of Agriculture, Morrisville, Instructor in Beekeeping.

NORTH CAROLINA—

Franklin Sherman, Jr., State Entomologist, Raleigh.

C. L. Sams, Extension Specialist in Apiculture, Raleigh.

Z. P. Metcalf, State College, West Raleigh, teaches a course in beekeeping.

Herbert Spencer, West Raleigh, teaching and investigation.

Association—

J. E. Eckert, Winston-Salem, Secretary State Beekeepers' Association.

NORTH DAKOTA—

No beekeeping at College of Agriculture nor State beekeepers' organization.

OHIO—

Jas. S. Hine, Columbus, in charge of Apiculture, State University.

Inspectors—

E. C. Cotton, Chief Bureau of Plant Industry, Columbus, in charge.

Deputies—

R. J. Porter, Delphos.
R. D. Hyatt, Columbus.

Association—

J. S. Hine, Columbus, Secretary State Beekeepers' Association.

OKLAHOMA—

C. E. Sanborn, Entomologist, Stillwater, teaching and research work in beekeeping.

Inspectors—

R. L. Blackwell, Oklahoma City, State Bee Inspector.

Association—

Mr. Howard, Wewoka, Secretary State Beekeepers' Association.

OREGON—

A. L. Lovett, Corvallis, Entomologist in charge.

H. A. Scullen, Corvallis, Teaching and Research at the College of Agriculture, also some extension work in beekeeping.

H. A. Scullen, Corvallis, Secretary State Beekeepers' Association.

Oregon has a law providing for County Inspectors, but at present none are serving.

PENNSYLVANIA—

J. G. Sanders, Director of Plant Industry, Harrisburg, in charge.

Chas. N. Greene, Harrisburg, Chief Apiary Adviser.

Inspectors—

Calvin C. Brinton, Pittston.
Oscar L. Rothwell, Gillett.
R. C. Wittman, St. Marys.
George Stroud, Luzerne.

Chas. N. Greene, Troy, Secretary State Beekeepers' Association.

RHODE ISLAND—A. E. Stene, Kingston, State Entomologist, in charge apiary inspection.
Edward D. Anthony, Barrington,

Secretary Rhode Island Beekeepers' Society.

SOUTH CAROLINA—

A. F. Conradi, Entomologist, Clemson College, in charge. Research.

E. S. Provost, Clemson College, Teaching and Extension.

SOUTH DAKOTA—

H. C. Severin, Entomologist, Brookings, in charge of Apiculture at the State College of Agriculture.

George Gilbertson, Brookings, teaching.

Inspectors—

L. A. Syverud, Yankton.
Ernest W. Fox, Fruitdale.

TENNESSEE—

G. M. Bentley, State Entomologist, Knoxville, in charge of Apiculture in State University.

Hamilton Steele, Instructor, Knoxville.

G. L. Herrington, Extension, Knoxville.

Floyd Brailliar, Madison, Nashville Agricultural Institute.

Inspectors—

J. M. Buchanan, Franklin, State Apiarist.

Associations—

G. M. Bentley, Knoxville, Secretary State Beekeepers' Association.

Hamilton Steele, Knoxville, Secretary East Tennessee Beekeepers' Association.

TEXAS—

S. W. Bilsing, College Station, in charge of Apiculture, College of Agriculture.

R. R. Reppert, College Station, Extension Entomologist.

Inspectors—

M. C. Tanquary, State Entomologist, College Station, in charge.

C. S. Rude, College Station, Chief Inspector.

A. H. Alex, College Station.

C. E. Heard, College Station.

H. S. Cavitt, College Station.

Association—

E. G. LeSturgeon, Manager Texas Honey Producers' Association.

UTAH—

George E. King, Logan, in charge of Apiculture at the College of Agriculture.

H. B. Terriberry, Capitol Building, Salt Lake City, State Bee Inspector.

H. B. Terriberry, Secretary State Beekeepers' Association.

VERMONT—

Rollin H. Barrett, Randolph Center, Apiculture in State School of Agriculture.

Inspectors—

Elbert S. Brigham, Commissioner of Agriculture, Montpelier, in charge.

J. E. Crane, Middlebury.

C. E. Lewis, East Shoreham.

F. L. Stearns, North Bennington.

Associations—

F. B. Manchester, Middlebury, Secretary Vermont Beekeepers' Association.

VIRGINIA—

W. J. Schoene, State Entomologist, Blacksburg.

W. J. Schoene, Secretary State Beekeepers' Association.

WASHINGTON—

George W. B. Saxton, Harwood, Secretary State Beekeepers' Association.

Mrs. J. E. Thomson, Cour de Alene, Idaho, Secretary Inland Empire Beekeepers' Association.

Inspection—

A. L. Melander, Pullman, Entomologist in charge.

J. B. Epsy, White Swan.

J. O. Wallace, Chehalis.

W. L. Cox, Elma.

C. H. Junge, Everett.

C. T. Tucker, Oak Point.

Fred Mandery, Tenino.

WEST VIRGINIA—

L. M. Peairs, Morgantown, Teaching and Experiment at College of Agriculture.

Will C. Griffith, Elm Grove, Secretary State Beekeepers' Association.

M. K. Malcolm, Charleston, Apiarist State Department of Agriculture.

Inspectors—

T. K. Massie, Hatcher.

L. D. Sharp, Slaty Fork.

Grant Luzador, Pennsboro.

Adam J. Yahn, Tridelpia.

WISCONSIN—

H. F. Wilson, Entomologist, Madison, in charge of Apiculture at the State University.

James I. Hambleton, Apiarist at University, Madison.

H. L. McMurray, Madison, Extension Specialist in Beekeeping.

Inspectors—

S. B. Fracker, State Entomologist, Madison, in charge.

H. L. McMurray, Chief Apiary Inspector.

C. D. Adams, Wauwatosa.

H. J. McMurray, Madison.

Newton Boggs, Viroqua.

County Apiary Inspectors—

Barron—Geo. Stowell, Barron, Wis.

Chippewa—Geo. Lotz, Boyd, Wis.

Clark—J. S. Sloniker, Greenwood, Wis.

Columbia—A. C. Allen, Portage, Wis.

Eau Claire—M. E. Eggers, Eau Claire, Wis.

Dane—R. L. Siebecker, Madison, Wis.

Fond du Lac—H. R. Tavs, Brandon, Wis.

Forest—J. Gentz, Wabeno, Wis.

Jefferson—W. R. Abbott, Fort Atkinson, Wis.

Langlade—James Cherf, Antigo, Wis.

Manitowoc—F. F. Stelling, Reedsville.

Marathon—R. W. Gunzel, Wausau.

Outagamie—G. A. Breitrick, Appleton, Wis.

Price—E. C. Rothe, Kennan, Wis.

Richland—W. I. Hatch, Richland Center, Wis.

Sauk—F. Hanley, North Freedom, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Shawano—R. A. Schwarzkopf, Bowler, Wis.

Sheboygan—Ivan Whiting, Plymouth, Wis.

Vernon—J. A. Doerr, Viroqua.

Waukesha—C. W. Aeppler, Oconomowoc, Wis.

Walworth—I. A. Travis, Elkhorn, Wis.

Winnebago—H. E. Greenwood, Oshkosh, Wis.

Wood—W. A. Sprise, Grand Rapids, Wis.

Associations—

H. F. Wilson, Madison, Secretary State Beekeepers' Association.

There are a number of county organizations, also.

WYOMING—

No organization.

Canada

DOMINION—

F. W. L. Sladen, Government Farms, Ottawa, Dominion Apiarist.

C. B. Gooderham, Government Farms, Ottawa, Apiarist.

P. Caron, Government Farms, Ottawa, Laboratory Assistant.

Investigations—

V. Kuhn, Experimental Farms, Agassiz, B. C.

P. Hamel, Experimental Farms, Cap Rouge, P. Q.

H. Newson, Experimental Farms, Charlottetown, P. E. I.

S. P. Pearson, Experimental Farms, Fredericton, N. B.

J. W. Sootheran, Experimental Farms, Invermere, B. C.

H. Straiton, Experimental Farms, Kapuskasing, Ont.

E. D. Craig, Experimental Farms, Kentville, N. S.

B. C. Milne, Experimental Farms, Lacombe, Alta.

T. F. Ritchie, Experimental Farms, Lennoxville, P. Q.

C. A. Crossfield, Experimental Farms, Lethbridge, Alta.

R. D. L. Bligh, Experimental Farms, Nappan, N. S.

C. F. Jeffrey, Experimental Farms, Sidney, B. C.

G. W. Johnson, Experimental Farms, Summerland, B. C.

BRITISH COLUMBIA—

W. J. Sheppard, Chief Apiary Inspector, Nelson.

F. Dundas Todd, Assistant Apiary Inspector, Victoria.

W. H. Gray, Assistant Apiary Inspector, N. Lonsdale.

W. H. Turnbull, Assistant Apiary Inspector, Sullivan Station.

A. W. Finlay, Assistant Apiary Inspector, Huntingdon.

A. Keir, Assistant Apiary Inspector, N. Lonsdale.

Capt. H. L. Chittenden, Assistant Apiary Inspector, Bradner.

Associations—

John Brooks, Vancouver, Secretary B. C. Beekeepers' Association.

W. H. Turnbull, Sullivan Station, Secretary B. C. Honey Producers' Association.

MANITOBA—

J. H. Kiteley, Winnipeg, Extension Service, in charge.

James Redden, Elmwood, Winnipeg, Secretary Beekeepers' Association.

NOVA SCOTIA—

W. H. Brittain, Provincial Entomologist, Truro, in charge.

ONTARIO—

Prof. F. Eric Millen, Provincial Apiarist, Guelph, in charge.

Inspectors—

James Armstrong, Simcoe.

Wm. A. Weir, Toronto.

Wm. Agar, Kleinburg.

Eric Hutchinson, Mount Forest.

Horace Haines, Fenwick.

S. A. Stewart, Cataraqui.

H. C. Harris, Alliston.

O. A. Sipple, Tavistock.

R. M. Taylor, Port Dover.

Chas. W. Houghton, Newton Robinson.

John Myers, Stratford.

R. E. L. Harkness, Iroquois.

Wm. Thompson, Indian River.

PRINCE EDWARD ISLAND—

Prof. Hansuld, Provincial Department of Agriculture, Charlottetown.

Harold Newson, Charlottetown, Bee Inspector for Prince Edward Island.

QUEBEC—

C. Vaillancourt, Chief Division of Apiculture, Quebec.

L. J. A. Dupuis, Assistant Chief, Division of Apiculture, Quebec.

H. J. Plourde, Lecturer Division of Apiculture, Quebec.

R. Fortier, Secretary Division of Apiculture, Quebec.

A. Pettigrew, Assistant Secretary Division of Apiculture, Quebec.

Inspectors—

H. Beland, Division of Apiculture, Quebec.

B. Brissette.

A. Lalonde.

Arthur Comire.

Ernest Fortin.

A. Philippon.

J. G. Sylvester.

L. Traversy.

Dr. O. A. Comire.

S. M. Dechene.

E. Girard.

A. Beauchemin.

Ulysses Thibault.

H. Lupien.

Rev. A. Bouillon.

V. Cherquite.

Associations—

J. A. Prud'homme, Ste-Philomene, Secretary Association of Beekeepers, Province of Quebec.

MacDonald College—

W. J. Tawse, Lecturer in Horticulture teaching and research in Beekeeping.

Institut Agricole, La Trappe, Bro.

M. Maur O. C. R., Professor of Beekeeping.

Oregon Beekeepers' Association

The Oregon Beekeepers' Association, at a recent meeting at Salem, elected the following officers: A. J. Sanford, President; Redmond; H. A. Scullen, Secretary-Treasurer, Corvallis. Oregon now has a law providing for county inspectors, but we understand none are now serving.

HONEY PRODUCERS' LEAGUE

The members of the Executive Committee of the American Honey Producers' League met at the Great Northern Hotel, December 6 and 7. This meeting was brought about by a call issued by the President, E. G. Le Sturgeon. He invited all those interested in the work of the League to meet with the Executive Committee as an advisory body. After discussing the problems of the League the Executive Committee took the following action:

B. F. Kindig, State Apiary Inspector of Michigan, was elected Vice President in the place of George H. Rea, resigned. In place of Charles B. Justice, temporary Secretary, the Executive Committee appointed H. B. Parks, of San Antonio, formerly with the Experiment Station, College Station, Texas, to be Acting Secretary and Treasurer.

The following committees, with power to select their associates, were elected: Education, B. F. Kindig; Equipment, C. B. Baxter, Leavenworth, Kans.; Legislation, Colin P. Campbell, Grand Rapids, Mich.; Markets, Frank Rauchfuss, Denver, Colo.; Legal Aid, O. L. Hershisier, Kenmore, N. Y.; Arbitration; H. B. Parks, San Antonio; Research, Dr. E. F. Phillips, Washington, D. C.

In order that something might be accomplished at once to help in relieving the present market situation a committee on advertising was appointed. This committee has the power to solicit funds and to get ads relative to the uses of honey on the market just as rapidly as possible. Clifford Muth, of Cincinnati, is chairman of this committee. C. B. Baxter and H. B. Parks are also on this committee.

The regular meeting of this League will take place in Indianapolis, Ind., February 15, 16 and 17. At this meeting, which from now on will be termed the Annual Meeting, the above committeemen will report the activities which have been commenced and the progress made. Those State Associations which have become affiliated with the League are entitled to a representative at this meeting and should notify the Secretary before the time of the meeting relative to their representative, so that proper credentials may be issued. All of the committees or bureaus are now ready for action. Anyone desiring the aid of any of these bureaus should address his communications to H. B. Parks, Secretary-Treasurer of American Honey Producers' League, Box 1048, San Antonio, Texas. The letter will then be sent to the proper man for action.

The American Honey Producers' League urges the attendance of everyone interested in the betterment of beekeeping at this meeting.

Missouri Meeting

The Missouri Apicultural Society will hold their regular annual meeting at Columbia during Farmers' Week, January 17 to 21. Those interested

can secure farther information and a program from Dr. L. Haseman, Columbia, Mo.

New Jersey Beekeepers' Association

Beekeepers of New Jersey and surrounding States within easy traveling distance of Trenton are looking forward with much interest to the annual meeting of the New Jersey Beekeepers' Association on January 13-14, 1921. The interest in the larger hive is keen at this time, and when Mr. C. P. Dadant discusses the Dadant hive and system of beekeeping the meeting place will be packed.

In the evening of the 13th Mr. Dadant will give an interesting sketch of American and foreign beekeeping at the annual dinner of the Association. With Dr. Thomas J. Headlee as toastmaster, a very enjoyable evening is assured.

To complete the program, Mr. Geo. H. Rea, Apicultural Expert for New York State, and Mr. Myers, a practical honey producer of the same State, will also address the meeting.

Elmer G. Carr, Sec.-Treas.

Beekeeping Short Courses

Short courses in beekeeping will be held this winter as follows:

Iowa College of Agriculture, Ames, January 4 to 7. Lectures by F. B. Paddock, C. P. Dadant, Wallace Park, L. H. Pammel, E. W. Atkins, A. H. Dunn, H. F. Wilson, E. D. Ball, R. E. Buchanan and R. K. Bliss.

Kansas College of Agriculture, at Manhattan, February 7 to 12. Lectures by J. H. Merrill, Frank Van Haltern, Geo. M. Hedges, J. A. Ninninger, E. W. Atkins, E. R. Root, Carl F. Buck, F. B. Paddock, C. P. Dadant, E. V. Gardner and E. G. Le Sturgeon.

Ohio State University, at Columbus, January 31 to February 4. Course in charge of Dr. E. F. Phillips and Prof. J. S. Hine; program not yet received.

New York College of Agriculture, at Ithaca, February 7 to 12. Course in charge of Dr. E. F. Phillips and George S. Rea. Program not yet received.

An Error

In our December number we stated that Alton L. Morgan was chairman of the Madison County, Illinois, Beekeepers' Association. It should be Alton L. Logan. Since organizing the beekeepers have had sufficient inquiry through the chairman to dispose of all the honey of the members.

Another Association Joins American Honey Producers' League

The Chicago Northwestern Beekeepers' Association held its annual meeting at the Great Northern Hotel, Chicago, on Monday and Tuesday, December 6 and 7. While this meeting was a very interesting one, having a very good program, the chief item of interest centered in the debate on whether the association should join the American Honey

Producers' League. After much discussion and debate the resolution was put before the assembly and finally voted unanimously in favor of joining.

Among the speakers were Mr. E. G. LeSturgeon, San Antonio, Texas; Dr. Fracker, Madison, Wis.; C. O. Yost, Indianapolis, Ind.; Kenneth Hawkins, Watertown, Wis. The same officers were re-elected for the coming year.

Nebraska Beekeepers to Meet

Secretary O. E. Timm advises us that the Nebraska Honey Producers' Association will hold their annual meeting at University Farm on Tuesday, January 4, and that a good program has been prepared.

A Big Sale of Honey

In our columns some months ago was an account of the sale of a large amount of honey by the New York Globe, which bought several cars of extracted honey in 60-pound cans from Idaho producers and sold it direct to the consumers in the city of New York. So much interest was developed as a result of this campaign that the same publication is doing the same thing again this year, this time selling it through the local stores in 5-pound cans. This honey is retailing at from 29 to 33 cents per pound put up in this way, according to the quality of the honey. A recent issue of the paper stated that 233,700 pounds had been sold so far. As a result of the publicity attending this effort an enormous amount of honey will be sold to the consumers in New York this winter.

Honey Inspector

A honey inspector has recently been appointed by the Wisconsin division of crops and markets. It is his business to see that all honey offered for sale in that State conforms to the law as to grade. Every package must be stamped with the weight and grade of the honey offered.

A New Publication

"Fur, Food and Fancy" is the name of a new publication which now comes to our desk. It is devoted to rabbits, pet stock, fur farming, bees, etc. Kenneth Hawkins, of Watertown, Wis., is the editor of the bee department. We are glad to see this department in such capable hands. The publication is well printed, attractively illustrated, and is published at Chicago.

Honey Week Proposed

The beekeepers of Florida have endeavored to induce the Governor of that State to issue a proclamation designating the first week in January as honey week. It is proposed to secure the co-operation of the grocers in inducing everybody to use honey for the first week of the new year. At time of going to press we had not learned whether they were successful.

Ontario County Beekeepers to Meet

F. Greiner, Secretary of the Ontario Bee Beekeepers' Society, sends notice that the annual meeting will be held at the court-house in Canandaigua, N. Y. on January 11.

Pennsylvania Show

The fifth annual Pennsylvania Farm Products Show will be held at Harrisburg, January 24 to 28. All exhibits of honey and wax should be sent to Charles N. Greene, Department of Agriculture at Harrisburg with exhibitor's name and address plainly marked on each package.

Concerning Drone-Comb

Jes Dalton, of Louisiana, writes to call attention to the fact that the queen breeder can overdo the matter of eliminating drone-combs, saying that he used great care for years to remove all possible drone-comb from his hives until he noticed a dearth of drones with which to mate the many virgin queens daily emerging.

Articles regarding the elimination of drone-comb are intended for the honey producer, rather than the queen breeder. Too many beekeepers greatly reduce their crops by the rearing of useless drones. The queen breeder, on the other hand, is principally interested in the production of bees, and a large number of drones at all seasons is essential to his success.

A Correction

I wish to call your attention to a mistake in the Journal of November, 1920, page 381, in the article on wintering by use of building felt, by me.

It should read "1½ pound building felt," meaning 1½ pounds to the square inch, and should be placed under the "cover," not the "corners."

Ira G. Blondell.

Scullen to Oregon College of Agriculture

The many friends of H. A. Scullen, who knew him while connected with the Iowa College at Ames, or the Washington College at Pullman, will be pleased to know that he has been engaged for beekeeping work at the Oregon College of Agriculture at Corvallis. Professor Lovett, Entomologist of that institution, has been devoting a portion of his time to the beekeeping department for some time past. It is good news to hear that beekeeping will now receive the entire time of an assistant.

Florida Beekeepers

The Florida State Beekeepers' Association was organized at an enthusiastic meeting of beekeepers from all parts of the State, held at the University of Florida, at Gainesville, October 6, when J. W. Barney, of Bradentown, was named President.

Other officers of the Association are: J. K. Isbell, Wewahatchka, Vice President; K. E. Bragdon, Cocoa, Secretary, and J. R. Hunter, Wewahatchka, Treasurer.

Three sessions were held during the

day, with an attendance of 100 beekeepers. The organization of the State Association has been fostered by Wilmon Newell, of the University of Florida, who is in charge of the apiary inspection work in that State. The State Association is the result of the crystallization of opinion among Florida beekeepers as the result of several strong local associations which have been organized in different parts of the State.

Florida now has an excellent apiary inspection law, and Mr. Newell, who has been assisted by Charles Reese and others of the State Plant Commissioner's Office, will now be assisted by the more than 100 members of the Florida State Association in spreading the gospel of better beekeeping.

Another New Beekeeper

Friends of Chas. H. Reese, former Apiarist of West Virginia and now in charge of bee inspection in Florida, will be glad to learn that a new daughter was born to Professor and Mrs. Reese on September 12.

CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

BEEES AND QUEENS

Lower Price. Top Quality. Atwater's Honey.

BEEES in 2-pound packages, with or without queens. Now booking orders for spring delivery. Safe arrival guaranteed. Always glad to answer questions. Caney Valley Apiaries, J. D. Yancey, Mgr., Bay City, Texas.

FOR SALE—Italian bees, hives, equipment. Wm. Hill, Warsaw, Ill.

THREE-BAND BREEDERS from one of the heaviest honey-gathering strains in the State. \$10 each. Delivery May 15. A. V. Small, Augusta, Kans.

1921 PRICES on nuclei and queens: 1-frame nucleus, \$3; 2-frame nucleus, \$6; 3-frame nucleus, \$6.50; without queens, f. o. b. Macon, Miss.; 5 per cent discount on lots of 25 or more. Untested queens \$1.25 each, \$15 per doz; tested queens \$2 each, \$22 per doz. No disease; inspection certificate with each shipment. Safe arrival and satisfaction guaranteed in U. S.. Queens sold only with nuclei. Geo. A. Hummer & Sons, Prairie Point, Miss.

PACKAGE BEEES—Same old prices if you send cash with order. E. A. Harris, Albany, Ala.

FOR SALE—Three-banded; Italian queens untested, \$1.50 each; 6, \$7.50; 12, \$14. Select untested, \$1.75 each; satisfaction guaranteed. W. T. Perdue & Sons, R. No. 1, Fort Deposit, Ala.

WE are booking orders for our golden Italian queens for spring delivery after April 15. Untested queens, 1, \$1.50; doz., \$15; select untested queens, 1, \$1.75; doz., \$18; virgin queens, 1, 75c; doz., \$9; tested queens, 1, \$3; doz., \$36. Safe arrival guaranteed. Tillery Brothers, Georgiana, Ala.

FOR SALE—Eutopian quality Italian queens, the kind that satisfy. May 15 to June 10, untested, \$2 each. After June 10, untested, \$1.50 each, 6, \$8. Virgins, 90c each; 6, \$4.76. Eutopian Apiaries, Amboy, Minn.

FOR SALE—Hardy Italian queens, \$1 each. W. G. Lauver, Middletown, Pa.

FOR SALE—Large, hardy, prolific queens: 3-banded Italians and golden, pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness and color. Untested, \$3 each; 6, for \$11; 25 for \$45; tested queens \$3 each, 6 for \$16. Buckeye Bee Co., Box 448 Massillon, Ohio.

WE are now booking orders for early spring delivery of two and three-frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.

Sarasota Bee Co., Sarasota, Fla.

FOR SPRING DELIVERY—One good Italian queen, 1 Hoffman standard frame emerging brood, 1 pound live bees, price complete \$6.50, f. o. b. Bordelonville. Queen introduced, mated, laying enroute; loss in transit replaced if noted on express tag by agent; no disease in State. References given. Orders booked, May delivery, one-fifth cash; orders filled in rotation. Jess Dalton, Bordelonville, La.

NUCLEI for 1921—We beg to advise those who intend to purchase nuclei to enter their orders early in order to be certain of being able to obtain them, as the demand greatly exceeded the supply during the past season, and the majority of late orders went unfilled. We are now booking orders for three-frame nuclei of Italian bees, with Italian queen, at \$6.50. Hybrid bees, with guaranteed pure Italian queen, at \$5.50. Terms, one-third down with order. No disease, safe arrival and satisfaction guaranteed. A. R. Irish, Doctortown, Georgia.

EDSON APIARIES now booking orders for queen bees for delivery during season of 1921. Prices: One untested queen, \$1.25; 50 untested queens, \$57.50; 100 untested queens, \$100. Orders filled in rotation; first shipments March 1, 1921.

Edson Apiaries, Gridley, Calif.

ORDERS BOOKED NOW for 1921 shipments of bees and queens. Send for descriptive circular and price list.

R. V. Stearns, Brady, Texas.

DAY-OLD QUEENS—Superior improved Italians, mailed in safety introducing cages. Safe arrival and satisfaction guaranteed anywhere in the U. S. and Canada. Send for circular. Order in advance. Prices, April to October, 1, 75c; 12, \$7.20; 100, \$60. James McKee, Riverside, Calif.

A. I. ROOT STRAIN of leather-colored Italians that are both resistant and honey gatherers. The queens and bees need no recommendation for they speak for themselves. Untested, one, \$1.50; six, \$8.40; twelve, \$16. Select untested, one, \$2; tested, one, \$2.50; select tested, one, \$3. For larger amounts write, A. J. Pinard, Morgan Hill, Calif.

PURE ITALIAN QUEENS—Golden or leather colored, packages and nuclei: 1 untested queen, \$1.50; 6, \$7.50; 12, \$13.50; 50, \$65; 100, \$100; virgins, 50c each; packages, 24 and under, \$2.25 per pound; 25 and over, \$2 per pound; nuclei, 1-frame, \$4; 2-frame, \$6; 3-frame, \$7.50; queens extra. One-story 10-frame colony with queen, \$12.

Golden Star Apiaries, R. 2, Box 106, Chico, Calif.

BEEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 1414 84 Cortland St., New York City.

PACKAGE BEEES AND PURE ITALIAN QUEENS—Booking orders now for spring delivery. Circular free. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

BOOK YOUR ORDERS for QUEENS now—Goldens, \$2; tested, \$3; banded, \$1.50; tested, \$2.50; six or more 10 per cent less. Clover Leaf Apiaries, Wahoo, Neb.

1920 PRICES for "She Suits Me" queens. Untested Italian queen, from May 15 to June 15, \$1.50 each. After June 15, \$1.80 each; \$12.50 for ten; \$1.10 each for 25 or more.

Allen Latham, Norwichtown, Conn.

"QUALITY" THREE-BANDED ITALIANS from excellent stock; untested queens, 1, \$1.50; 6 for \$7.50; 12 for \$12.50; 50 for \$55; 100 for \$100. N. J. James, 1185 Bird Ave., San Jose, Calif.

HIGH GRADE ITALIAN QUEENS—Send for catalog.
Jay Smith, R. 3, Vincennes, Ind.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

HONEY AND BEESWAX

Lower Price. Top Quality. Atwater's Honey.

FOR SALE—Choice clover extracted honey, \$31.50 per case of two 60-lb. cans. For large quantities, write for prices.
J. D. Beals, Oto, Iowa.

FOR SALE—Amber honey, 2 60-lb. cans per case, 15c per pound; less in 10-case lots.
Arthur Knerston, Shreveport, La., Gen. Del.

FOR SALE—6,000 lbs choice clover and basswood honey in 60-lb. cans, packed 2 to the case. Give me an offer.
Rowen Grebin, Preston, Minn.

FOR SALE—Raspberry, basswood, amber and clover honey in 60-lb. cans, 2 per case, at 20c per pound. Also in 5 and 10-pound pails.
Julius Gentz, Wabeno, Wis.

EXTRACTED HONEY—We sell it in any quantity. Write for prices.
C. C. Clemons Produce Co.,
128 Grand Ave., Kansas City, Mo.

FOR SALE—Finest quality extracted honey in 60 lb. square cans 2 cans per case. State how much you can use and I will quote you on same.
Angus M. Paterson,
212 E. 5th St., Flint, Mich.

NEW HONEY. NEW PRICES—Supply your customers, finest alfalfa-clover honey, extra strong cases, \$11.50 for one 60-lb. can, \$21.00 case of 2, all f. o. b. here. Write for prices large lots. Two carloads sold; plenty on hand.
E. F. Atwater, Box 37J, Meridian, Idaho.

FOR SALE—20,000 pounds of choice light amber honey, from Spanish needle and heartcase in new 60-pound cans and 5 and 10-pound pails. Write for price and sample. Please state how much you can use.
F. W. Luebeck, R. 2, Knox, Ind.

FOR SALE—White sweet clover extracted honey in new 60-pound cans, at 17c a pound f. o. b. Delta, Colo.
J. T. Hartford, Cedaredge, Colo.

FOR SALE—Well ripened extracted clover honey, 20c per pound, buckwheat and dark amber 17c, two 60-pound cans to case; clover extracted in 5-pound pails, \$1.25; amber and buckwheat, \$1 per pail, 12 pails to case, or 30 to 50 pails to barrel.
H. G. Quirin, Bellevue, Ohio.

WHOLESALE PRICES to beekeepers for their winter trade, alfalfa, sweet clover, extracted, 16c per pound in 60-pound cans.
Foster Honey & Merc. Co., Boulder, Colo.

FOR SALE—Finest white clover and basswood extracted honey in 60-pound cans.
Noah Bordner, Holgate, Ohio.

EXTRACTED HONEY—Fancy L. A. quality, 60-lb. tin, 2 per case, 12c lb.; 10-lb. tin, 6 per case, 15c lb.; white 20c per lb. in 60-lb. cans.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—Sweet clover extracted honey in 60-lb. cans. First premium at county and state fairs. Harry McCombs, Sterling Colo.

SOUTHERN AMBER HONEY—Two 60-lb. cans to the case, 15c per pound.
Walter Reppert, Shreveport, La., Gen. Del.

FOR SALE—Choice white clover honey in 60-lb. cans; none finer.
J. F. Moore, Tiffin, Ohio.

FOR SALE—Very fine quality basswood-milkweed (mostly milkweed) honey in 60-pound cans.
P. W. Sowinski, Bellaire, Mich.

FOR SALE—Clover and buckwheat honey, either comb or extracted, at reduced prices; any style container. A postcard will bring our quotations.
The Deroy Taylor Co.,
Wayne Co., Newark, N. Y.

FOR SALE—Honey of a basswood and clover grade, put up in 60-lb. cans, 18 cents per pound f. o. b. here; sample 20c.
W. M. Peacock, Mapleton, Iowa.

WANTED—Comb and extracted honey.
The L. H. Snider Apiaries, Auburn, Ind.

FOR SALE—Finest Michigan raspberry, basswood and clover honey in 60-lb. cans, 25c per pound. Free sample.
W. A. Lathshaw Co., Clarion, Mich.

FOR SALE—Very choice grade of sweet clover extracted honey.
Thos. Atkinson, Cozad, Neb.

WANTED—Extracted honey. State how packed. Send sample, lowest cash price.
P. Outzen, White Bear Lake, Minn.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

SUPPLIES

Lower Price. Top Quality. Atwater's Honey.

IN going over our stock we find some soiled articles, good for all practical purposes but hardly to be sent out as first-grade material. We offer these at reduced prices, as follows:

2 crates 5-1 sty. 8-fm. dovetailed hives, per crate	\$15.00
4 crates 5-10 frame supers for 5¼ extracting frames, empty, per crate	2.75
2 crates 25 single tier ship. cases, with glass ¼, per crate	12.50
1 crate 50 ship. cases for 3¼x5 sections	20.00
1 crate 100 Hoffman frames	6.00
1 crate 100 section holders	4.50
5 crates 5 No. 1 Wisconsin supers, per crate	3.50
1 crate 5 No. 1 10-fm. dovetailed supers	5.00
3 crates 5 10-fm. supers for 4¼x4¼x1½ sections, per crate	4.50
5 cases 24 24-oz. jars, per case	1.50
7 cases 24 6-oz. jars, per case	.90
5 cases 25 6-oz. jars, per case	.80
1 No. 15 extractor	35.00
1 No. 25 extractor, hand power	60.00
1 Cook's Manual book, cloth bound	.75
1 Langstroth book, cloth bound	1.25
2 Doolittle Queen Rearing, cloth bound, each	.50
1 Fifty Years Among the Bees	.75
1 Productive Beekeeping	1.50
2 Practical Queen Rearing, each	.75
1 Miller's Thousand Answers	.75
1 Outapiaries	.75
1 American Honey Plants	1.50
2 Wright wiring devices, each	2.00
2,000 4¼x1¼ 3 si. split sections, per thousand	12.00
10 Thale bee feeders, each	.35
5 No. 4 8-fm. dovetailed supers	4.00
5 10-fm. Lang. Simplicity supers	3.50
5 No. 2 10-fm. Tri-State supers	4.00
5 10-fm. Tri-State extracting supers	4.00

Write today, sending cash with order.
Dadant & Sons, Hamilton, Ill.

GOING CHEAP—50 eight-frame and 50 ten-frame standard dovetailed hives, complete with Hoffman metal-spaced frames, covers and bottoms, all in the flat, at \$9.75 apiece; in any amount, from one to fifty; cash with order.
Paul D. Roban, Waverly, Minn.

FOR SALE—We have recently transferred 50 colonies of bees from old-style American hives with 12x12 frames. The discarded hives are in good shape, well painted and would be desirable to anyone having this size hives. We offer the empty hives at \$1.50 each, if all are taken in one lot. Write for further particulars.
Dadant & Sons, Hamilton, Ill.

FOR SALE—3,000 como-honey supers for 4x5 section, nailed and painted; run in clean yards; are practically as good as new. Also, 4,000 Airline shipping cases; also nailed, corrugated paper for same; also 40,000 grooved sections with full sheets of foundation for same. This is all A1 stuff and prices away down.
L. A. Coblentz, Rigby, Idaho.

ROOT'S GOODS at Root's prices.
A. W. Yates, Hartford, Conn.

SPECIAL 5-GAL. CANS—Have 300 cases left, perfect California used 5-gal. cans, 2 to case, heavy wood, large screw-cap cans. Will close out to first buyers 60c case. Order quick.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—To reduce stock, crates of 96 1 gallon cans, with balls and 3-inch screw caps, at \$17.50 per crate, f. o. b. Grand Rapids.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—One-pound jars in two doz. cases, ten cases or more at \$1.75 per case, f. o. b. factory.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—Good second-hand double-deck comb honey shipping cases for 4¼x4¼x1½ sections, 25 cents per case, f. o. b. Cincinnati; terms cash with order.
C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati. Terms cash with order.
C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

SEND us a list of goods wanted and will quote you lowest prices. We are the money-saving house. Price list free. Try us.
H. S. Duby & Son, St. Anne, Ill.

WANTED

Lower Price. Top Quality. Atwater's Honey.

WANTED—Second-hand extractor.
Dr. Smith, Villisca, Iowa.

WANTED—Three to five thousand lbs. of choice or light amber honey. Mention how packed. Send sample and lowest cash price.
H. C. Wittmann, Lincoln, Neb.

BEES WANTED—100 strong, healthy Italian colonies in standard hives. Address,
A. L. Foster, 1209 W. Forest Ave.,
Detroit, Mich.

WANTED—A good honey location and bee outfit.
Delbert Lhommedieu, Colo, Iowa.

WANTED—Back numbers of Gleanings in Bee Culture, from January, 1899, to June, 1920.
W. H. Humphries, Midvale, Va.

WANTED—Migratory C. I. Graham can handle carload of healthy bees in 1921 season. Three hundred double colonies for extracted honey on share basis, fifty-fifty. Ship to Southern California Sage Belt, where I have produced 300 pounds of water-white sage honey per colony in May and June. Then shipped to later field for second and third crops. Winter address, Durham, Butte County, California.

WANTED—White clover honey, 60 pounds and up. Address,
Frank Coyle, Penfield, Ill.

I BUY and sell bees. If you have one colony or more, write
Frank Coyle, Penfield, Ill.

WANTED—To correspond with parties having bees in 10-frame standard hives that will lease them on shares. Will give good contract and have a good southwest Iowa location.
W. A. Jenkins,
144 Simmons St., Galesburg, Ill.

WANTED—Bees, with or without location.
F. W. Pease,
1717 Blake Boulevard, Cedar Rapids, Ia.

WANTED—Beeswax, old combs and cappings for rendering on shares. Also was accepted for trade. Top market prices offered.
A. I. Root Co., Council Bluffs, Iowa.

WANTED—White extracted honey of fine quality. Write us what you have, and price.
Longfellow Bros., Hollowell, Maine.

WANTED—Disease-free bees, beehives, brood-combs and other bee "fixings." What have you?
Lloyd W. Smith, Madison, N. J.

WANTED—Beeswax. At present we pay 86c per pound in cash and 88c in trade for clean, yellow wax, delivered Denver.
The Colorado Honey Producers' Association,
Denver, Colo.

WANTED—Second-hand hives, standard 10-frame. Dr. Smith, Villisca, Iowa.

WE BUY HONEY AND BEESWAX. Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section and sections to a case. Extracted honey, quantity, quality, how packed, and send sample. Charles Israel Bros. Co., 480-490 Canal St., New York City.

WANTED—Extracted honey, also comb honey, beeswax and maple syrup. State how packed. Paul Thomas, 1181 3rd St., Milwaukee, Wis.

WANTED Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

WANTED—Your old combs, cappings and slumgum to render into beeswax. We get enough more wax with our well equipped presses to pay for our work. Dadant & Sons, Hamilton, Ill.

SITUATIONS

Lower Price. Top Quality. Atwater's Honey.

WANTED—Two comb-honey men for season of 1921. Give experience, age, and wages expected. B. F. Smith, Jr., Fromberg, Mont.

WANTED—Two helpers, one with experience, to begin March, for 700 colonies of bees. Give age, experience, wages wanted, recommendations, etc. Can sell an apiary so you can work it out. May lease all after August. El Centro, Calif., Box 2, R. F. D. 1.

WANTED—Young man by year, to begin at once to sell honey and work with bees. State experience and wages. Students Bee & Honey Co., Berkeley, Calif.

WANTED—Will give experience and fair wage to active young man not afraid of work, for help in large, well-equipped set of apiaries for season starting April. State present occupation, weight, height, age and beekeeping experience, if any. Morley Pettit, The Pettit Apiaries, Georgetown, Ont.

WANTED—Position with good bee man in Texas. Have had experience. Wife and 14-year-old boy also like to work with bees and chickens. Ready to work by February. J. H. T. Meurer, 616 S. 8th St., Fredonia, Kan.

WANTED—Beekeeper with some experience, for work in our apiary on Key Biscayne during the season of 1921, to begin February 1, under the direction of C. E. Bartholomew, who was formerly with the Department of Agriculture. Hugh M. Matheson, 1608 Avenue G, Miami, Fla.

WANTED—One or two good queen-rearing men to begin work February 15, 1921. Nueces County Apiaries, Calallen, Texas.

FOR SALE

Lower Price. Top Quality. Atwater's Honey.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled. Superior Honey Co., Ogden, Utah.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog. A. E. Burdick, Sunnyside, Wash.

FOR SALE—Fifty 8-frame hive-bodies at a bargain. P. W. Sowinski, Bellaire, Mich.

FOR SALE—100 8 and 10-frame hives, Root and Wilder make, part painted, with half-depth supers, with shallow frames; only used this season. No disease here. Am changing to long idea hive, reason for selling. Price \$900 for the lot, or \$2.25 each. A. Irish, Doctortown, Ga.

FOR SALE—Custer Battlefield Apiaries. I will sell my 200 colonies of bees, with a full outfit for extracted honey, house and 5 acres of land, quarter mile from Hardin. If interested, write me. S. F. Lawrence, Harlin, Mont.

FOR SALE—White sweet clover seed, hulled, 20 cents per pound. Will Gavin, Lake Arthur, New Mexico.

FOR SALE—40-acre farm, 10 acres timber; nice home; 1 mile from R. R. station; ideal place for bees and poultry, \$3,200. Additional land if wanted. Write for particulars. H. J. Koopman, Falmouth, Mich.

FOR SALE—150 colonies in two-story 8-frame hives, best combs, \$15 per colony; good condition April 1. Some equipment half catalog price. This will not appear again. Daniel Danielson, Brush, Colo.

FOR SALE—Biennial sweet clover; white 25c; yellow 20c pound; makes finest of stock and bee pasture. Inoculation \$1 for bushel seed; samples. Elmer Fraser, Maryville, Mo.

ALABAMA Farm, especially adapted to BEES. Mild climate, long flowering season, variety of crops; **BARGAIN**. Owner, 169 Uhlard Terrace, Washington, D. C.

MISCELLANEOUS

Lower Price. Top Quality. Atwater's Honey.

GRANULATED HONEY SLIPS—100, 20c. Dr. Tonney, Buck Grove, Iowa.

GINSENG and 200 other roots and herbs for making medicine, perfume and dyes; how to gather. Address of buyers that pay top prices. Book only 30c. O. Twitchell, Box 9 W. Milan, N. H.

WILL EXCHANGE Barnes saw, No. 1 condition, for Hershiser wax press or 16-ga. hammerless double gun, or offers. Enclose stamp. A. D. D. Wood, Lansing, Mich.

OLD-TIME BEE BOOKS—50 to 250 years old. Every beekeeper should own at least one. Send for price list. John E. Miller, 58 S.; 1819 Weeks Ave., New York City.

DR. MILLER'S BEE SONGS are in "Songs of Beedom." Ten songs for 20 cents, postpaid; 2-cent stamps taken. Also Teddy Bear souvenir postal cards, 10 for 10 cents. Address Geo. W. York, Box 84, Spokane, Wash.

SELL YOUR WARES with sign-boards, the silent salesmen. Place now to sell next year's crop with them. Signs made to order. Prices reasonable. Satisfaction guaranteed. Investigate. H. A. Schaefer, Osseo, Wis.



QUEENS

Write for our catalog of high grade Italian Queens. Pure mating and safe arrival guaranteed.

Prices for 1921:

1 to 4 inclusive	\$ 3.00 ea.
5 to 9 inclusive	2.90 ea.
10 or more	2.80 ea.
Breeders	12.00 ea.

JAY SMITH (Route Three) Vincennes, Ind.

THAGARD'S ITALIAN QUEENS

Bred for quality. My Three-banded queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting and honey producers. They are superior. Try them and be convinced. Book your orders now for spring delivery.

Untested, 1, \$2; 6, \$8; 12, \$15.	Tested, 1, \$3; 6, \$16; 12, \$28.
Select untested, 1, \$2.25; 6, \$10; 12, \$18.	Select tested, 1, \$5; 6, \$25; 12, \$50.

BEEES BY THE POUND AFTER MAY 1

One pound, \$4; two pounds, \$7.
Hybrid bees—One pound, \$2.25; two pounds, \$4. Add price of queen wanted.
Lots of ten or more packages, 10 per cent discount.
Safe arrival, pure mating and perfect satisfaction guaranteed. Circular free.

V. R. THAGARD, Greenville, Ala.

Italian Bees by the Pound in Packages

GOLDEN QUEENS

3-BAND QUEENS

We are better prepared than ever before to handle a large demand for both queens and bees by the pound. Let us send you one of our 1921 circulars and late price lists. We are now booking orders almost daily for next spring delivery. Let us book your order now, so as to assure prompt delivery when the bees or queens are wanted. Only a limited number of orders will be accepted for booking, as we are absolutely determined to take only as many orders as we can handle absolutely on time.

M. C. BERRY & COMPANY, Haynoville, Ala., U. S. A.

Quality Bee Supplies

FROM A

Reliable House

Without fear or favor, I place my BEE WARE and SERVICE before you.

It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using MONDENG'S GOODS.

Quality is first—save time when you put your goods together, by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

I am ready to meet your urgent needs.

Send for my new price list.

Closing out all Langstroth and Wisconsin hives and supers. Also Langstroth triangular top-bar frames and eight-frame D. T. supers for 4x5 sections. Will sell at cost price. Write for quotations.

CHAS. MONDENG

146 Newton Ave. N. and 159 Cedar Lake Rd. Minneapolis, Minn.



ITALIAN QUEENS



BOOKING ORDERS NOW FOR 1921. QUEENS READY APRIL 1

My Italians are of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, very resistant to foulbrood, and the best of honey gatherers. I have sold a good many queens to parties who are using them in stamping out foulbrood. Will book orders for one-fourth cash, and the balance just before delivery. Will guarantee safe arrival in the United States and Canada.

PRICES FOR APRIL, MAY AND JUNE

	1	6	12		1	6	12
Untested -----	\$1.50	\$8.00	\$15.00	Tested -----	\$2.50	\$12.50	\$24.00
Select untested	1.75	9.00	16.00	Select tested ----	3.00 each.		

No nuclei or pound packages of bees for sale.

Descriptive circular and price list free.

JOHN G. MILLER

723 C. ST., CORPUS CHRISTI, TEXAS

FOR SALE

IF YOU WANT THE CHEAPEST, BUY THE BEST

I am prepared to furnish for the season of 1921 twenty-five hundred two and three nuclei of my bright 3-banded Italian bees, headed with young, vigorous queens. These bees are free from disease and safe arrival guaranteed. Hoffman frames wired and on full sheets of foundation; very few combs over two year sold. I am booking orders now, with first payment to be made February 1, 1921, unless purchaser wishes to make a payment with order.

Two-frame, \$4.25; three-frame, \$5.25. If queens are wanted add \$1.25 each.

A. B. MARCHANT, Jesup, Ga.

Reference: Merchants and Farmers Bank of Jesup.

PAINT WITHOUT OIL

Remarkable Discovery that Cuts Down the Cost of Paint 75%

A Free Trial Package is Mailed to Everyone Who Writes

A. L. Rice, a prominent manufacturer of Adams, N. Y., discovered a process of making a new kind of paint without the use of oil. He named it Powderpaint. It comes in the form of a dry powder, and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to A. L. Rice, Inc., Manufacturers, 23 North St., Adams, N. Y., and a free trial package will be mailed to you, also color card and full information, showing you how you can save a good many dollars. Write today.



PAT. JULY 30, 1918

C.O. BRUNO NAILING DEVICE

Made for the Huffman Brood Frames. A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE \$7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1415 South West Street, Rockford, Illinois

Illinois Beekeepers

Become a member of the State Association. If you pay the dues of \$1.75 you become a member, get a year's subscription to your choice of bee journal and cloth-bound copy of the annual report issued every fall.

G. M. WITHROW, Secy.
Mechanicsburg, Ill.

ATTENTION, PACIFIC NORTH-WEST BEEKEEPERS!

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our Catalog A. It's free.

SPOKANE SEED CO.,
906 First Ave. Spokane, Wash.

BEST GOLDEN ITALIANS

BEN G. DAVIS, SPRING, HILL
TENN.

BINDING FOR BEEKEEPERS

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading.

LUTZ & STAHL, Keokuk, Iowa



NOW IS THE TIME

When the market is slow is the time to push local sales by means of well-placed advertising. Our line of honey labels is the finest in the market. If you have not yet received a copy of our catalog, send for one today.

CALENDARS, PLACARDS

We are prepared to furnish the queenbee in color like the one on this month's cover, either as a placard or a calendar. These are printed on white enameled cardboard 7x11 inches in size. Price, with your advertisement printed thereon, \$2 per dozen, or \$11 per hundred, postpaid.

We also have the children's doll party, little girls eating honey, on similar enameled cardboard, 9x11 inches, in either calendars or placards, at \$2 per dozen, or \$11 per 100. Make your advertisement brief, as it can be read more readily without too much printing.

AMERICAN BEE JOURNAL, Hamilton, Ill.

Boyer's "Quality-First" Tin Honey & Syrup Containers

are the best and cheapest in the long run.

Prompt shipments of all standard sizes and styles.

**Can manufacturers
since 1892. Large
Capacity**

If you cannot secure them from your usual supply house, write us your needs.

W. W. BOYER & CO., Inc.
2327-2329 BOSTON STREET
BALTIMORE, MD.

We have obtained a large amount of 1 pound glass jars that we can offer at \$6.85 per gross, F. O. B., Newark, N. Y.

Friction Top Pails all ready for delivery at Newark, New York

2½ pound cans, f. o. b.	\$ 6.50 per hundred
3 pound cans, f. o. b.	7.00 per hundred
5 pound pails, f. o. b.	10.70 per hundred
10 pound pails, f. o. b.	16.00 per hundred

The above prices are f. o. b. Newark, of \$1 per hundred less f. o. b. Baltimore, Md.

Now is a fine time to gather up your old combs and ship them in for rendering. Write for our terms and shipping tags. Highest cash prices paid for beeswax, or we will change your wax for foundation.

We have in reserve a complete line of bee supplies which we can quote you attractive prices on. We also have some special offers to make on 8-frame hives, bottom-boards and covers.

Send in your list of requirements and let us quote you on same.

Address THE DEROY TAYLOR CO., Newark (Wayne Co.), N. Y.

FRICTION TOP PAILS---GLASS HONEY CONTAINERS

2½ pound pails in 2 doz. shipping crates.
2½ pound pails, 200 per crate.

5 pound pails, 100 per crate.
10 pound pails, 100 per crate.

18 oz. screw cap glass honey containers, 1 doz. per case—fibre shipping cases.

We also carry a full line of Lewis supplies. Send list of your needs, or requests for catalog, to

DEPARTMENT B

WESTERN HONEY PRODUCERS, SIOUX CITY, IOWA

BEEKEEPERS

Place your order for supplies NOW and take advantage of the Early Order Cash Discount, 5 per cent for December, 4 per cent for January. Our stock of Standard Hives, Supers, Hive Bodies, Brood Frames, Foundation and all other Standard Goods is complete. "If you want the Cheapest, buy the Best."

Our aim is to give prompt service, highest quality and Guaranteed satisfaction to our customers. Send us a trial order. We feel confident you will be satisfied.

Our annual catalog will be ready for mailing January, 1921. It's free for the asking.

AUGUST LOTZ COMPANY, Boyd, Wisconsin

BEE SUPPLIES

We are prepared to give you value for your money. Our factory is well equipped with the best machinery to manufacture the very A-best supplies that money can buy. Only the choicest material suitable for bee hives is used. Our workmanship is the very best. Get our prices and save money.

Eggers Bee Supply Mfg. Co.

Incorporated

ROUTE 1, EAU CLAIRE, WIS.

SELL YOUR CROP OF HONEY TO

HAUFMAN & HAUCK, Inc.

WOODHAVEN, N. Y.

No lot too large or small, and purchase your containers. Prompt shipment.

2½-pound pails, case 2 doz., \$1.90 each; crate 100, \$7.25
5-pound pails, case 1 doz., \$1.80 each; crate 100, \$11.00
10-pound pails, case ½ doz., \$1.60 each; crate 100, \$17.50
5-gal. cans, used 2 to case, 60c case.

White Flint Glass Jars, Screw Caps—

Quart honey, 3-lb. size, 1 doz cartons	\$1.25 each
1-lb. size, 2 doz. cartons	\$1.70 each
½-lb. size, 3 doz. cartons	\$2.00 each

PORTER

**BEE
ESCAPE
SAVES
HONEY
TIME
MONEY**



For sale by all dealers.

If no dealer, write factory

R. & E. C. PORTER, MFRS.
Lewistown, Illinois, U. S. A.

(Please mention Am. Bee Journal when writing)

HONEY FOR SALE

We have New York State light honey, 2 60-lb. cans in a case. Price on application.

I. J. STRINGHAM, Glen Cove, N. Y.
NASSAU, CO.

BARNES' FOOTPOWER MACHINERY

Read what J. E. Parent, of Chariton, N. Y. says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."



W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS



ELECTRIC IMBEDDER

Price without Batteries \$1.50
Not postpaid.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

For sale by all bee supply dealers

Dadant & Sons, Manufacturers
HAMILTON, ILL.

BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Send Us Your Inquiries

A. H. RUSCH & SON CO.
Reedsville, Wis.

Place Your "falcon" Order Early

DELIVERIES will be more certain; everything will be on hand ready for spring. Special discount to early buyers.

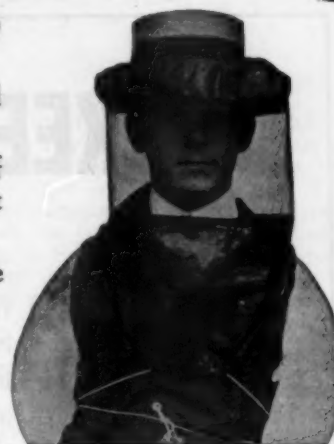
INCLUDE an Ideal Bee Veil in this season's supplies. Made of light weight indestructible wire and strong cloth. Will not blow in your eyes or stick to your face.

"falcon" bees and bee supplies are guaranteed to give absolute satisfaction. Send for our red catalog.

W. T. FALCONER MANUFACTURING CO.

FALCONER (Near Jamestown) N. Y., U. S. A.

"Where the Best Bee Hives Come From"



Wishing all a Merry Christmas
and a Happy New Year

C. H. W. WEBER & CO.
CINCINNATI, OHIO

2163-65-67 CENTRAL AVE.

FOREHAND'S QUEENS. They Satisfy, Why?

Because of 28 years of experimental work with both queen breeding and honey production.

With breeding and selecting of imported queens, I have reached a standard which is ideal. Queens as good, but none BETTER. Why experiment? Take advantage of the life experience of my breeders.

OUR SERVICE STATION.

We are ready to serve you at all times, whether you desire queens or advice. Let us help you with your bee problems. All questions are cheerfully answered.

I breed three-band Italians only.

November 1 to June 1.

	1	6	12
Untested.....	\$2.00	\$ 9.00	\$16.00
Selected Untested.....	2.25	10.50	18.00
Tested.....	3.00	16.50	30.00
Selected Tested.....	3.50	19.50	36.00

Orders booked now for spring delivery. One-fourth the full amount with order and balance when shipment is desired. Pure mating, safe arrival and satisfaction guaranteed. Write for circular and large order discounts. Shipment to foreign countries at receiver's risk

N. FOREHAND, Ramer, Alabama

BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure, sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

ARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

FOR YOUR WINTER TRADE

HONEY

WHOLESALE PRICES

16c PER POUND
EXTRACTED HONEY
SIXTY POUND CANS

F. O. B., BOULDER, COL.

NOTE:—This Honey will be granulated, finest quality white alfalfa—sweet clover honey, this years production

COMB HONEY

Crates of 8 Cases. 24 Sections

Fancy.....\$7.50
Number One..... 7.25
Number Two..... 6.75
F. O. B., Boulder, Col.

THE FOSTER HONEY & Merc. Co.
BOULDER, COL.

A NEW BEE BOOK
"Dadant's System of Beekeeping"
Price \$1.00.

ANOTHER NEW BOOK

BEEKEEPING IN THE SOUTH

BY KENNITH HAWKINS



There is a general demand for a book giving detailed information relating to beekeeping conditions in the South. Kenneth Hawkins, as a beekeeping specialist for the United States Department of Agriculture, visited all the Southern States and has made a special study of the characteristics of this region. This is not a text-book of beekeeping, but rather a book of information about a great region where beekeeping offers exceptional possibilities and where there is a great variation of the climate and flora of different sections. Illustrated with many photographs. Mailing weight one pound. Price \$1.25.

AMERICAN BEE JOURNAL, Hamilton,
Illinois

FOR SALE 1000 NUCLEI ITALIAN BEES WITH QUEENS

I am offering to the trade for the season of 1921, 1,000 nuclei Italian bees with pure mated Italian queens. My combs are built from full sheets foundation in Hoffman frames; prices as follows:

Prices on Nuclei with Untested Italian Queens

Two-frame nuclei, \$5.50 each; 25 or more, \$5.00 each.

Three-frame nuclei, \$6.50 each; 25 or more, \$6.00 each.

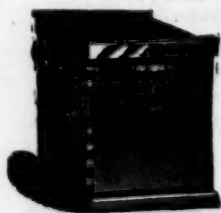
Price on Italian Queens

Untested queens, \$1.50 each, \$15.00 per dozen; 25 or more, \$1.00 each.

Tested Italian queens, \$2.50 each, \$25.00 per dozen; 25 or more, \$1.75 each.

I am booking orders now and will be glad to have your order or part of same. I shall be ready to make shipments April 15, and assure you prompt attention, and orders filled when promised, or money returned. I guarantee safe arrival, no disease in any of my yards.

SOUTH GEORGIA APIARIES W.T. DONALSON
Proprietor Hebardville, Ga.

**MR. BEEKEEPER—**

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today*

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri

J. W. ROUSE, Mexico, Missouri

A. M. HUNT, Goldthwaite, Missouri

Crop and Market Report

Compiled by M. G. Dadant

For our January market page we asked the following questions of our contributors:

1. How much honey remains on hand in your section?
2. How is the demand? Local? Wholesale?
3. At what price is honey being offered? At what price sold?
4. How did bees go into winter quarters?

HONEY ON HAND

There seems to be very little honey left in the New England States and the bulk of the crop has moved in New York and Pennsylvania, except with some of the large producers, who have from 20 to 50 per cent on hand. Practically the whole crop seems to have moved in the Southeastern States, and at fair prices. In Texas there is not a great deal of honey left, probably 10 to 20 per cent would cover it. The Central States, including the States of Ohio, Indiana, Illinois, Iowa, Missouri, Kansas and Nebraska, have disposed of a majority of their honey in a retail way. There are, of course, still a number of large producers who are holding a part of their crop, but there seems to be no inclination to a very large drop in prices to dispose of it. In Michigan practically all the small producers have sold their crop and some of the large producers are out. A majority of the big beekeepers, however, have probably 50 per cent or more of their honey on hand. The same is true in Wisconsin and Minnesota. There are varying reports from Colorado and the Inter-mountain States. Probably a majority of the beekeepers within the Association have disposed of their honey, especially the combs. Throughout the whole territory there is possibly 30 to 50 per cent left in the hands of the producers. In Montana honey has moved very well and there is probably not 20 per cent of the crop left. The Idaho crop seems to have moved a little slower, as did that of Utah and Nevada. Washington and Oregon seem to be cleaning up pretty well on their honey. The reports from California are conflicting. Some of the large beekeepers have disposed of their entire crop, others have from 25 to 40 per cent on hand. The Association there is making an extensive campaign and should have no trouble in disposing of the output of its members.

DEMAND FOR HONEY

Throughout the whole country the wholesale and jobbing demand for honey seems to be still slow, with probably considerable improvement over when our last report was written.

Throughout the eastern half of the country the retail demand is good and those who have made any campaign for pushing the local sales have gotten rid of their honey without difficulty. Within the last week or ten days there seems to have been a quickening of the demand on the part of the wholesalers. This is probably due to the fact that retailers are asking for holiday stocks and as the wholesalers' holdings are light, it is necessary for them to restock.

PRICES OF HONEY

The honey price is holding up very well. The lowest prices suggested by any of the reporters was 16c for white honey, and many have written that they have disposed of their crop at from 18 to 20c. There were one or two suggestions that a drop of 25 per cent over last year's price might be necessary in order to dispose of the bulk of the crop.

Texas honey is selling for 14 to 16c for extracted. Other southern honey seems to be moving at about the same figure, with a tendency to cut the price 2c or more in order to make quick sales.

One Iowa reporter suggests he will let loose of the bal-

ance of his honey for 19c for extracted and 6.50 per case for comb. The majority of reports, however, suggest a wholesale price of 20c per pound for best white extracted honey.

The honey of the Inter-mountain territory is mostly extracted, practically all the comb having been disposed of. Most of this honey is being held at a price of from 17 to 20c per pound for the best white extracted, with a few suggestions on the part of the large producers that they would accept 12c for amber and 15c for white to dispose of their whole crop.

One of the Idaho reporters suggested 15c for carload lots of white honey, whereas practically all reporters from Montana desired a higher price, approximately 18c for extracted and \$7 per case for comb.

The California Association is holding to its prices, based at about 14c to 18c, depending on the grade.

CONDITION OF THE BEES

There is a remarkable unanimity on the part of all reporters in stating that bees are in excellent shape and should winter very well through having large amounts of stores and plenty of young bees. Usually at this time of year there are many reports of colonies going into winter short of stores, but the fall of 1920 seems to have been especially good for filling up the brood-chambers of the colonies. There is also the fact that the beekeepers were able to obtain sugar more readily and feed more plentifully.

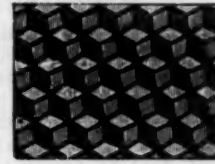
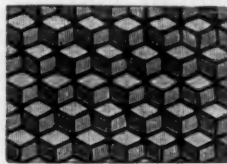
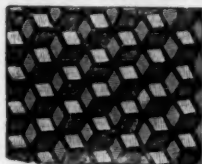
SUMMARY

The California Association has just put on a big campaign for honey-selling, with considerable advertising, and feel that they should have no difficulty in disposing of their crop at the prices they have been asking. Although there is a slight tendency on the part of some beekeepers to cut the price to make sales, the general inclination on the part of all is to hold for a price of at least 15 to 16c for white extracted honey, with 2 to 3c per pound less for amber. Some sales are reported for amber honey as low as 10 to 11c in carload lots. It seems that the honey crop should move fairly well at remunerative prices, providing some section of the country does not break the market by offering large lots at a very low price. This might necessitate other communities also unloading with a very demoralizing influence on the general honey market. There has been very little cold weather, so far, and therefore the honey demand has not been so large as it would have been with a hard winter. One thing which has helped push the market down is the fact that there are large quantities of West Indian honey coming into the different ports. We have an offer of West Indian honey put up in 50-gallon new gumwood barrels at 75c per gallon f. o. b. New York. This is a price of less than 7c per pound. Of course this is a very inferior honey, probably which cannot rank with any of our domestic product. Still it can be used in certain lines to compete with our amber honey and, therefore, it has a depressing influence on the market. We can see no reason for demoralization at present, but conditions do suggest two things necessary. One is that the beekeepers will have to push harder on local sales, and those who are sold out should deem it their duty to buy more honey to help reduce the supply. The other necessity is for some thorough advertising campaign carried out co-operatively, which will bring honey before the people and create a demand. When we realize what a small amount of honey is used per capita in this country we can see that there would be no trouble in disposing of the whole of the present crop at excellent prices, with a proper marketing and advertising organization. The development of the Honey Producers' League should certainly be a great help.

AIRCO FOUNDATION WHY?

We are now beginning to get the beekeeper's own verdict on Airco Foundation, the new Root-Weed process, announcement of which we made a year ago.

We then told the beekeepers that the new process had to do with both the refining of the wax and the milling of the wax sheets. We said that we believed that we had made one of the greatest of all improvements in the manufacture of comb foundation.



Today, with reports coming in from beekeepers who have now used this new foundation, we are sure that all the claims we have made for the Airco are fully proved. Let's have some of the testimony:

BEES DRAW IT OUT SOONER

"The bees accept it quickly; draw it out with less labor, and sooner. I have used over 200 pounds of Airco the past season."
Marietta, N. Y. J. G. Burtis.

SIMPLY PERFECTION

"This foundation may be called the crown of all betterments in modern beekeeping. It is simply perfection. The fact is that we need nothing better, and I am convinced that it cannot be surpassed."
Sabanna, Brazil. Victor Jungers.

FAR SUPERIOR TO ANY OTHERS

"Airco Foundation is far superior to any other foundation that I have ever tried. The bees accept it at once, and draw it out into fine worker comb."
Lake Geneva, Wis. C. H. Gebhardt.

We have many such commendations for Airco Foundation. It is only praise that comes from the beekeepers, and so it is that we believe it to be the best comb foundation that has ever been made.

WHY IT'S BEST

Airco Foundation is superior in these points: It is all made of high-grade wax and refined without the use of any acids or other injurious chemicals. By this new refining process, the wax retains its aroma, and the impurities are more perfectly eliminated than by any other process known. Most important of all, the new process of milling this superior wax gives a comb foundation nearer like nature's than any other made. The cell base is thinner and the walls deeper, for which reason the bees accept it sooner and draw it out more quickly than they do the old-process foundation.

We invite every beekeeper in America to make his own test of Airco Foundation this year. We shall be willing to abide entirely by the verdict to be rendered by the users of this far superior new foundation.

Write for particulars and prices

THE A. I. ROOT COMPANY
MEDINA, OHIO

Lumber that Lasts?



Here's a Convincing Case of an Experienced Beekeeper who —

(But let the gentleman tell it himself:)



BUCK GROVE, IOWA, February 2, 1916.
"I have been a Cypress man for 10, these many moons. Almost all my dovetail hives are of Cypress, as are bottom-boards, and I think, shallow telescope covers. My hive stands are of Cypress, and stand in the mud and wet all the time and are as solid as when I got the first one some years ago. Cypress is a trifle heavier than white (cork) pine, but not much more than the heavier grade of pine now used. The fact that it is 'everlasting' compensates for all this." (Signed) A. F. BONNEY, M. D.

For a job of repairing or for equipment, the lumber that will give you the greatest real investment value in the market is Cypress, commonly known as the "Wood Eternal." This wood does not rot down like most woods; it lasts and lasts and LASTS, and LASTS and LASTS. It is the Gopher Wood of the Bible—Noah built his ark of Cypress. Since the days of Noah, Cypress has been famous for endurance under the most trying conditions. **Cypress is the one certified Greenhouse wood. That's "some" test. Bottom boards are another.**

GET A BOOK—IT IS FREE

There are 42 volumes in the internationally famous Cypress Pocket Library, and each is authoritative in its field, and all are FREE. Vol. 1 is the U. S. Gov't Report on Cypress—that is a good authority, surely. Vol. 4 is the Barn Book, with plans and specifications for building. Vol. 36 is the Carpentry Book, making easy a dozen hard jobs of carpentry. Vol. 19 is the Canoe and Boat Book. Vol. 37 is the Silo Book. All are free for the asking. Suppose you ask for one or a dozen, right away.

WORTH INVESTIGATING

This Cypress wood matter is worth investigating. Just write our "All-round Helps Department."

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA.

1251 PERDIDO BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST POST OFFICE

ALUMINUM HONEY COMBS

STANDARD LANGSTOTH SIZE AVAILABLE NOW

PRICE PER COMB 60c

Ideal extracting supers, modified. Dadant and Jumbo Combs will be ready for delivery after February 1, 1921.

Write for our new catalog containing full description and prices on

**LEWIS BEEWARE
DADANT FOUNDATION
ALUMINUM HONEY COMBS**

TEXAS HONEY PRODUCERS ASSOCIATION

1105 S. Flores St.

P. O. Box 1048

San Antonio, Texas

Here to Serve You

At Council Bluffs, the focal center of western shipping facilities, where we can ship your order out over any one of eleven roads, saving you freight and valuable time.

And with a complete and guaranteed line of supplies. Allow us to quote on your needs, large or small. We are certain we can interest you and save you money. Try us.

Our business--quality goods, our code--service all the time.

In making the announcement that this coupon would not only put our Service Department at the disposal of Western Beekeepers, but bring to them also the first three of our "LIVE TOPICS FOR LIVE BEEKEEPERS," we knew that many enthusiastic producers would respond. One writes: "I have faith in my business, and am on the lookout for new ideas and suggestions. Send me Topics." And another, in mailing the coupon, writes across the bottom of it: "Fine!" The general response has convinced us, therefore, that we are filling a want in this direction. As we desire to aid beekeepers in making their work 100 per cent efficient, we repeat the announcement with this word, "Why haven't you clipped this coupon?"

Watch the suggestions we list on the coupon, and when you note one that is of particular importance to you, mail it. Send it along today, if we can aid you in any way, or if you desire "Topics."

THE A. I. ROOT CO., Council Bluffs, Ia.
Gentlemen:

Please send me your circulars, "Live Topics for Live Beekeepers." And as I am interested in making the most of my honey production, I shall use your Service Department often. Just now I am particularly interested in:

_____ Wintering _____ Your New Airco Foundation
_____ Books that will make Beekeeping more Inter-
esting and Profitable.

_____ Marketing Crops _____ Plans for Spring Activities
I have _____ colonies of bees in _____ frame hives

For your further information I wish to state that

Name _____

Address _____

The A. I. ROOT CO., Council Bluffs, Ia.

*Why haven't
you clipped
this coupon?*